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Vol. XIV, No. 1 JANUARY, 1925

JOURNAL
OF THE
AMERICAN PHARMACEUTICAL ASSOCIATION

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THE SEVENTY-THIRD ANNUAL CONVENTION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN DES MOINES, IA., DURING THE WEEK OF AUGUST 31, 1925

The 1925 meetings of the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy will also be held in Des Moines, during the week of August 31, 1925.

For Association Roster, see page x.

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DR. I. M. KOLTHOFF

UNIVERSITY OF UTRECHT, HOLLAND

Honorary Member of the American Pharmaceutical Association

I. M. KOLTHOFF.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XIV JANUARY, 1925 No. 1

I. M. KOLTHOFF.

The American Pharmaceutical Association, at the Buffalo meeting, elected Dr. I. M. Kolthoff, of the University of Utrecht, an honorary member. He was present at the convention, participated in the discussions of papers in several of the Sections and read a paper on "The Concentration of Silver Ion Concentration of Argentum Proteinicum." Dr. Kolthoff remained in the United States for about two months and, during his visit, delivered a number of addresses before scientific bodies. Although well and favorably known as a chemist he earned the degree of "Apotheker" in 1915, after four years' work at college; three years later he received the doctor's degree at the University of Utrecht; he continued his studies in the laboratory of Prof. Erich Müller in the Technical High School of Dresden, Germany, completing a course in electrochemistry.

A request was made of Dr. Kolthoff to supply a sketch of himself to be printed in the January number of the JOURNAL—he sent fourteen lines, and turning to the 1921 YEAR BOOK, we find twenty-six titles of papers by him, which were abstracted and published in this volume. Reference to the indices of the succeeding and preceding volumes speak of the activities of our recently-elected honorary member from Holland, and, while it would be pleasing to make more extended personal notes of this scientist, the records of his work introduce him to the readers. Dr. Kolthoff is our youngest honorary member—he was born at Almelo, in the province of Overyssel, Netherlands, February 11, 1894; after graduation from High School, 1911, he attended college and received his other degrees as stated in the introductory paragraph.

He is a member of the faculty of his *Alma Mater*, and his scientific work has largely been concerned with the application of physico-chemical principles in analytical chemistry. Reference has been made to the titles of some of his papers which appear, in abstract, in the A. PH. A. YEAR BOOKS; he is also the author of two books—"Der Gebrauch von Farbenindicatoren," a French translation of which is in preparation and an English translation is contemplated, and "Die Konduktometrischen Titrationen." A book to follow very soon is on "Potentiometric Titrations," a subject which entered into several of the addresses delivered by Dr. Kolthoff while in the United States.

E. G. E.

EDITORIAL

E. G. EBERLE, EDITOR 253 Bourse Bldg., PHILADELPHIA

THE YEAR WITH US.

A cross-word optimist gives the answer for an equation of four digits that means success as—1925—because one plus nine are ten, and ten times two times five are one hundred per cent.—a full measure of success.

Looking into the future the majority are hopeful of better things, hence, the New Year celebration is not a rejoicing because another year has come to a close, but an expression of hope that the one being ushered in will carry with it greater success and happiness. The beginning of each new year brings the prophet and the historian back to back—one writes of things accomplished, the other of what will be done. An opportunity grasped and achieved leads to one of greater moment. Here then we have another viewpoint—1925 profiting by the achievements of the past year, will have greater significance—opportunity is the essential hope and prospect of the New Year and inspiration comes from those that have passed. The structure of a building is secure on a firm foundation; our work rests on pharmacy and not on the many divisions that are attached, no matter how important and essential they may be for its successful conduct.

Looking backward over a period of years, great progress in pharmacy is discerned; there is no cause for being unreasonably impatient with its present status; each reader will make his own survey, but non-essentials should not receive undue consideration. Every trade and profession has something to contend with that is not pleasing; life throughout is checkered—consequently its activities.

The American Pharmaceutical Association has a history that all related and attached organizations have pride in, because their constituents have contributed thereto and share the honors of its accomplishments—the headquarters project is to mark an achievement of pharmacists of these bodies before the records of 1925 have been closed. Carl Weeks, in speaking of the Headquarters Building, referred at length to an address delivered at the opening of the new building of the Equitable Life Insurance Company of Iowa, and he closed his comments, which are apropos, in this way:

"There is evidence of these heart qualities (Unity, Strength and Beauty) in the labor of many minds and hands which have contributed to make this structure a symbol of unity, strength and beauty. Let us here renew our pledge of loyalty to this institution, its founders and our fellow workers, and in the enjoyment of the inspiring atmosphere of our new home let us take on new enthusiasm for our chosen task. As we dedicate this home to the use of our institution in a larger field of service* * *let us also dedicate ourselves to a more devoted ministry to our fellow men and through this institution resolve to make our lives a fuller expression of the ideals of usefulness in our activities, strength of character, and beauty of spirit.

"Let this building declare to the people what we are."

Rather than speak only of what is to be done, as will be noted, we prefer to write of what is in prospect because of what has been done. The earlier workers

within our Association have given us our present opportunities; we can realize on them but we are not entitled to all of the credit. So in looking forward to what will be done, we must also look backward, not only within the very limited sphere of the affairs of pharmacy but outward by way of the points of contact with all other activities.

While we welcome the New Year in a spirit of optimism, the chronicles of 1924 remind us that during last year men regained a clearer vision, many of the disagreements which held the world during the past seven years were removed, a more decent and friendly spirit returned and, in consequence, men have begun to labor and hope, bring up crops, restore the balance in industry, and set their individual lives in better order; the spirit of coöperation and confidence is more in evidence. Writing in the *Philadelphia Public Ledger* of January 4th, Mr. George E. Roberts, of the National City Bank of New York—after pointing out that one of the chief obstacles to good business has been the lack of balance in industry—said:

"The world is passing out of such a situation, and this is the chief reason for confidence that it is entering upon better times. Prosperity is a state of balanced industry, with production and prices so well adjusted that the exchanges are readily made. This situation is more nearly approached to-day than at any time since the great disturbance occurred." E. G. E.

THE STANDARDS OF PHARMACY.

EACH annual convention of the American Pharmaceutical Association and of the organizations closely affiliated impresses the mission of pharmacy, the responsibilities of pharmacists and their desire to measure up to them. Expression of these desires may differ but the essentials are the same; the higher educational requirements of those who enter pharmacy and the advances in teaching methods of the schools and colleges of pharmacy, restricting the number of students and of pharmacies, have the same objects—to better qualify educationally and morally those who practice pharmacy; character tests are applicable to pharmacies as well as to students and pharmacists.

The sources of the foregoing comments are the transactions and papers of the Buffalo convention. Another line of evidence that may be referred to is the watchfulness during the discussions of resolutions so that they may express clearly and definitely the views of the members of these bodies on matters that mean protection of the public. More and more stress is being laid on the necessity for as exacting requirements of students for college entrance as for graduation, and that pharmacy ownerships should be limited to those who are qualified by education and observant of the obligations of pharmacy.

The value of the code of ethics of pharmacists (for the same guide has been approved by all or nearly all associations and institutions of pharmacy) is in the beneficial results derived from its practical application and that it reaches the consciences of those who assent to it as a rule of conduct. The code inspires higher ideals in the members of the profession and encourages them to aspire to the realization of the ideals, thereby bringing them into closer relation; adherence to it is the visible evidence of the stability of the organizations in question, and this comment

expresses some of the thoughts which flowed from the study of their transactions and papers referred to, while others speak for the progress of the art and science of pharmacy.

Each annual convention has its influence; whether it is realized at once or not, in after years there come results which had their inception when the thoughts were first presented in resolution, discussion or paper. E. G. E.

AMERICAN PHARMACY HEADQUARTERS WILL LINK THE RESEARCH WORKERS OF SOUTH AMERICA WITH THOSE OF THE UNITED STATES.

DR. H. H. RUSBY—past president of the American Pharmaceutical Association, well and favorably known as a scientist and for his explorations in South America, Mexico and the Southwest—has pointed out benefits to be derived by the establishment of the A. Ph. A. Headquarters, and in doing so he has drawn upon the records of his explorations, which have added largely to our Materia Medica and to our knowledge of the botany of South America. His name will always be linked with South American discoveries in plant life, and now he seeks to link more closely the pharmacists of the land of his explorations with those of the United States and strengthen the ties which are bringing the nations of North and South America into closer friendly relationship, and coöperation in science and commerce. The valuable contribution by Dr. Rusby will be read with interest; it follows:

"So much has been written, and by so many contributors, regarding the importance of a permanent home for the American Pharmaceutical Association, and the advantages that it would afford for editorial and educational work, for the making and storage of records, for the accumulation and exhibit of relics and historical exhibits and of general collections of pharmaceutical interest, and for affording facilities for surveys, investigations, and researches, that little remains to be said on these subjects. Indeed, it would appear that nothing more would be necessary to establish the claims of the Association to public support in this great undertaking. There is, however, one great field of usefulness for such a home about which little has been said, namely, that of pharmaceutical missionary work in tropical America, through the establishment and cultivation of mutually helpful relations with our professional brethren in those countries. This is a work of high importance and, unlike most missionary work, it is likely to return advantages to ourselves worth many times what it costs in time, labor, and expense.

"It is very easy for us of the North, with our vast resources of every kind for the promotion and advancement of our profession, to indulge in harsh criticism and to look with disdain upon the shortcomings of our Southern colleagues, and it is for us, as the more highly favored party, to offer our services in improving their condition whenever and wherever willing coöperation can be secured. We have done something of the kind in Cuba, because of our close political relations with its people, but there is no good reason why our activities should not be extended beyond the range of such relations. There are many centers of population in tropical America where the membership of our association might be extended with profit to

such members and to the communities in which they serve. Having had rather exceptional opportunities for judging of conditions there, I can see no serious obstacle in the way of establishing branches of our association in those countries, as we have done in so many of our States. The benefits that might result from such an extension of our influence may be far greater than any estimate that we can form at the present time.

"While commercial returns to our country may not properly be regarded as our incentive, the possibility of such results is well worthy of consideration. There is another direction, however, in which the relations contemplated could be made of the greatest value to our association, namely, in aiding in our research work, and it is in this connection that an association headquarters would be of exceptional use. In fact, it is difficult to see how such work could be carried on in a systematic way without such a headquarters.

"Numberless pharmacists and other professional men in tropical America have interested themselves in the investigation of the problems that so abundantly present themselves in those regions, but find themselves handicapped by the insufficiency of libraries, laboratories and apparatus. Through the medium of our Association home, assistance could be given in these directions that would bring results otherwise impossible. On the other hand, our own investigators could derive the greatest assistance through the coöperation of tropical correspondents. What one of us has not found his investigations blocked by the need of some material or basic information that he had no means of securing, and which could have been supplied had a proper correspondence organization existed such as our proposed home might easily perfect? Not only might we thus be enabled to secure such information and material when the requirement arose in the course of an investigation, but there would doubtless be a continuous flow of such contributions, without solicitation, as soon as it was known that an organization existed for taking care of them.

"I can think of no other way in which American pharmacy and the allied sciences would be likely to profit so much as by a well-organized bureau conducted by our research division, for carrying on a work of this kind, facilitated by the accommodations that could be supplied by our headquarters building." E. G. E.

RESULTS OF ELECTION OF AMERICAN PHARMACEUTICAL ASSOCIATION ANNOUNCED.

The Board of Canvassers—E. V. Howell, Chairman, E. V. Kyser and F. O. Bowman—has announced the results of the count of ballots, electing L. L. Walton, Williamsport, Pa., *President;* William C. Anderson, Brooklyn, N. Y., *First Vice-President;* Clyde L. Eddy, New York City, *Second Vice-President;* and *Members of the Council,* H. C. Christensen, Chicago, Ill., Samuel L. Hilton, Washington, D. C., and Julius A. Koch, Pittsburgh, Pa. These officers will be installed at the Des Moines Meeting.

A. PH. A. HEADQUARTERS' FUND PAYMENTS SHOULD BE MAILED TO TREASURER.

Subscribers are requested to send the installments due on their subscriptions to the Headquarters' Fund to Treasurer E. F. Kelly, Charles and Franklin Streets, Baltimore, Md., without waiting for further notice. The Headquarters' Building Campaign Committee is endeavoring to keep collection expenses as low as possible, by saving postage costs, etc., and, therefore, prompt and full coöperation as indicated will be appreciated.

ORGANIC, PROTEIN, AND COLLOIDAL SILVER COMPOUNDS.*

BY P. M. GIESY.

In recent papers,[1] Pilcher and Sollmann have reported their examination of various silver preparations with a view to determining their antiseptic efficiencies and irritating effects under various conditions. The method used was essentially that of determining the concentration of the silver preparation under test required to inhibit the fermentation of sucrose by yeast under definite conditions. Tests were made in water, 0.8% aqueous sodium chloride and defibrinated blood. Since sodium chloride precipitates silver ions, they argue that the difference in activity in water and saline corresponds to the content of "free silver ions," which they state is a measure of the irritant and astringent effects of the material. In this way they conclude that silver nitrate contains 62.7 per cent. of ionic silver, and 0.8 per cent. of non-ionic silver.

This method is open to several objections. It is questionable whether the inhibitory effects of the materials on yeast growth will parallel their germicidal activities. It is well known that the effects of various germicides on different organisms are not always parallel. The work of Hamilton[2] shows this very plainly; he finds that acriflavin has the same germicidal power as phenol toward staphylococcus, while it is 1300 times as effective against gonococcus as phenol.

Another objection is that sodium chloride may not destroy entirely the activity of ionic silver, as they assume. It appears to be quite as logical to suppose that this is why they found silver nitrate to have some inhibiting power in the presence of sodium chloride, as to suppose, as they did, that silver nitrate contains 0.8 per cent. of non-ionic silver. In one case, that of "Argyrol y," the presence of sodium chloride actually increased the inhibitory effect of the preparation on yeast growth. It is impossible to explain this if we assume that the only effect of sodium chloride is that of destroying the activity of silver ions.

It would seem that in addition to its precipitating effect on silver ions, sodium chloride may affect the inhibiting power of these preparations by virtue of its effect upon their colloidal nature. It is well known that salts often have a coagulating effect on colloids, and that in other cases they may exert a peptizing action. Certainly we should not overlook the possibility of these effects in this case. Unpublished work of this laboratory has shown that the physical state of these colloidal germicides has immense effect on their germicidal power.

The authors appear to have confused to some extent "ionic" and "ionizable" silver. They draw conclusions as to the amount of "ionic" silver, whereas their method, if their assumptions are correct, will give them rather "ionizable" silver, or, more correctly, silver more ionizable than silver chloride.

Smith and the present author[3] have measured electrometrically the actual silver ion concentrations of several colloidal silver germicides, and by following the changes in voltage as the solutions were titrated with a standard solution of hydriodic acid have determined the percentage of silver in these compounds ioniza-

* Scientific Section A. Ph. A., Buffalo meeting, 1924.

[1] *J. Lab. and Clin. Med.*, 8, 301 (1923); 9, 256 (1924); 10, 38 (1924).

[2] *J. Lab. and Clin. Med.*, 9, 244 (1924).

[3] JOUR. A. PH. A. (to be published).

ble at each silver ion concentration level. The following table shows how their results compare with the conclusions of Pilcher and Sollmann:

	Pilcher and Sollmann.	Smith and Giesy.		
Product.	Ionic Silver.	Ionic silver.	Silver more ionizable than AgCl.	Silver more ionizable than AgI.
Silver Nitrate	98.7%	81.%	100.%	100.%
Protargentum	70.0	4.9	75.5	81.0
Collargol	1.73	0.00032	0.0	5.0
Solargentum	1.36	0.00014	0.0	5.1

The "Pilcher and Sollmann Ionic Silver" values were obtained by calculating the percentage of "ionic silver" in each preparation from their data by their method, and then dividing this figure by the percentage of total silver in the preparation. The "Smith and Giesy Ionic Silver" values were obtained by converting the p_{Ag} values obtained as described in their paper[3] into concentrations, taking the average of these, and dividing by the concentration of total silver. The values for "Silver More Ionizable than AgCl" were obtained from their titration curves by reading off the cc. of $N/10$ HI required to reduce the p_{Ag} to 4.9, the value indicated by the curves for the p_{Ag} of pure saturated AgCl. Since the Ag in the solution was $N/10$, and 100 cc. were titrated, cc. of $N/10$ HI correspond to % Ag. The "Silver More Ionizable than AgI" was found similarly, taking the p_{Ag} of pure, saturated AgI as 7.95. If the values of p_{Ag} for saturated AgCl and AgI are calculated from the solubilities given by Seidell,[4] 0.0020 and 0.0000028 Gm. per liter respectively, we get for the p_{Ag} values 4.72 and 7.76. The use of these values instead of those taken from the titration curves gives only small changes in the values of the table; the largest is in the Solargentum-AgI value, which is reduced from 5 to 3%.

While there is rough agreement between the "Pilcher and Sollmann Ionic Silver" and the "Smith and Giesy Silver More Ionizable than AgCl" values, it is evident that Pilcher and Sollmann's figures for "Ionic Silver" and those found by the electrometric method do not agree.

Pilcher and Sollmann have given no reasons for believing that the content of ionic silver is a measure of the irritating effect of these materials. It is, of course, true that Protargentum, with 4.9% ionic silver, is more irritating than Solargentum, with 0.00014% of ionic silver, and that silver nitrate is more irritating than either. But since Protargentum gives, for the same amount of silver, 30,000 times as many silver ions as Solargentum, it seems quite obvious that any small differences in silver ion content will have negligible effect.

REMARKS.

P. M. Giesy: May I point out the difference between the curve of protargentum with potassium iodide and with hydrochloric acid. I think that is of some importance. Dr. Kolthoff titrated with potassium iodide, but in the presence of sulphuric acid which would give him the curve corresponding to our curve with hydrochloric acid rather than to our curve with potassium iodide.

RESEARCH LABORATORIES, E. R. SQUIBB & SONS,
BROOKLYN, N. Y.

[4] "Solubilities of Inorganic and Organic Compounds," 2nd Ed.

SILVER ION CONCENTRATION STUDIES OF COLLOIDAL SILVER GERMICIDES.*[1]

BY R. B. SMITH AND P. M. GIESY.

There has been in the past much uncertainty as to the actual composition of the colloidal silver germicides. Some have thought that compounds of the solargentum type were colloidal metallic silver, others that they were colloidal silver oxide; some have thought that compounds of the Protargentum type were colloidal silver oxide, others that they were silver-protein compounds. Recently Pilcher and Sollmann[2] have published work on the inhibiting effect of various silver germicides on yeast fermentation and have drawn from their results certain conclusions regarding the silver ion content of these materials which seemed to us questionable.

In an effort to settle some of these vexed questions we decided to attack the problem by actually measuring by an electrometric method the silver ion concentrations given by solutions of these materials, which measurements might also give some clues as to the actual constitution of these materials. But this measurement told us only part of what we wished to know; we desired to know also how much of the silver was ionizable to this extent. Just as one can have weakly acidic solutions containing a small amount of a strong acid, or a large amount of a weak acid, so here it would have been impossible to distinguish by this method between a small amount of a highly ionized silver compound, or a large amount of a slightly ionized one. In order to do this we titrated the compounds with a material which would throw silver into an extremely ionized form, and followed the changes in silver ion concentration by our electrometric method. In this titration, the most highly ionized silver reacted first, so that our titrations showed how much of the silver was ionizable at each silver ion concentration level.

As titrating agents we used potassium and hydrogen iodides. For comparison, we also ran titrations with sodium and hydrogen chlorides, chlorides being frequently present in actual use of these materials. The materials titrated were silver nitrate, silver oxide, a compound of the Protargin Strong type (Protargentum), a compound of the Protargin Mild type (Solargentum), a compound of the Collargol type (Collargol) and a colloidal silver iodide (laboratory preparation).

In expressing our results we have found it convenient to use the symbol p_{Ag}, meaning the negative logarithm of the silver ion concentration. Thus, if a solution

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* Scientific Section A. Ph. A., Buffalo meeting, 1924.

[1] In December, 1923, K. v. Neergaard published (*Arch. f. Exper. Pathol. u. Pharmakol.*, 100, p. 162) an article which we were unable to get hold of until after the presentation of this paper. He gave curves for potentiometric titrations of $AgNO_3$, Septacrol, Albargin, Protargol, Syrgol, Hegonon, Choleval, Elektrargol, Argentamin, and Collargol ($N/500$ with respect to total Ag in all cases) with $N/10$ KCl. On account of the difference in concentrations and materials used, it is impossible to compare our results directly with his. The use of KCl instead of HI or KI resulted in his not recognizing any ionizable silver in Collargol, which we found.

We are unable to agree that this method shows a difference between silver in true solution and in colloidal form. It only shows the amount of silver ionizable to any particular degree. Silver may be both colloidal and somewhat ionizable or in true solution (as a complex ion or compound) and much less ionizable.—Authors.

[2] *J. Lab. and Clin. Med.*, 8, 301 (1923); 9, 256 (1924); 10, 38 (1924).

is $N/10000$ with respect to silver ions, its p_{Ag} is 4. It will be recognized that p_{Ag} has the same meaning as regards silver ions as has p_H in regard to hydrogen ions.

Our results show that Solargentum contains from 11 to 14% of its silver in a form more highly ionized than AgI in the presence of excess soluble iodide. Its p_{Ag} is 6.7 to 7.1. Collargol has an initial p_{Ag} of 6.5, and 10% of its silver is more ionized than silver iodide. The remainder of the silver in these compounds is probably metallic silver. The ionizable silver is probably combined with protein material in some insoluble or slightly ionized form.

Protargentum has a p_{Ag} of from 2.1 to 2.4, and has 81% of its silver more ionizable than silver iodide. It is probably a mixture of colloidal silver oxide with silver protein compounds.

While no exhaustive search of the literature has been made, the authors believe that this is the first time that such ion concentration studies have been made except in the case of hydrogen ions. They desire to point out that the method is a perfectly general one. In making titration curves of acids (or bases), a titration agent is used which will throw the hydrogen (or hydroxyl) ions into a very slightly dissociated form, namely, water. The same principle can be used with any other ion. All that is needed to make a titration curve for an ion is a method of measuring the concentration of the ion, and a titrating agent which will throw the ion into a very slightly dissociated form.

General Part.

Discussion of Method.—The general method was to make up 100 cc. of a solution which was tenth-normal with respect to the silver content of the compound, to titrate this with $N/10$ HI, KI, HCl or NaCl and to follow the titration by means of the potential of a silver electrode in the solution.

It would be possible to determine this potential by immersing a silver electrode in the solution and another in a silver solution of known concentration, but in practice it is much simpler and more accurate to use a saturated KCl-calomel half-cell as the reference electrode, as we did. When this is done the silver electrode in all solutions having an Ag ion concentration greater than 3.2×10^{-8} will be positive to the mercury of the calomel half-cell and the connection of the calomel half-cell to a potentiometer will be to the negative instead of to the positive terminal. When during the course of the titration the silver ion concentration drops below 3.2×10^{-8} then the leads from the concentration chain are interchanged. When these results were plotted the voltage readings corresponding to a high silver ion concentration were plotted as plus, so that the p_{Ag} scale would lie in the right direction.

In order to calculate p_{Ag} from the potential measurements obtained by the above method, it is necessary to know the potential difference between a silver electrode in a solution which is normal with respect to silver ions and a saturated KCl-calomel half cell. A somewhat incomplete search of the literature yielded no reference to the measurement of such a value, but it can however be calculated with sufficient accuracy from the potential of a silver electrode in $N/10$ $AgNO_3$ against a saturated KCl-calomel half cell. As will be seen later this potential is 0.497 volt as measured with the hook-up described above. The constant can be calculated as follows:

According to Nernst the relation of the ion concentration and the electromotive force is given by the equation:

$$E = E_0 + \frac{RT}{nF} \log_e C,$$

where E = electrode potential corresponding to ionic concentration C
E_0 = electrolytic potential (electrode potential at molar concentration of the ion)
R = the gas constant (8.32 joules per degree)
T = absolute temperature (273° + temperature C)
n = valency of the ion
F = the faraday (96,500 coulombs)
C = ionic concentration of the solution.

This formula applies to an electrode immersed in a solution containing ions of the element of which the electrode is composed.

Substituting in the Nernst formula numerical values wherever possible, and using 25° as our working temperature, we have:

$$E = E_0 + .0591 \log C$$

The ionization of $N/10$ $AgNO_3$ as determined by the conductivity method is 81% and the actual silver ion concentration will therefore be 0.081N.

$E = E_0 + .0591 \log .081$
$= E_0 + .0591 (8.91 - 10)$
$= E_0 + .0591 (-1.09)$
$= E_0 - .064$
E as measured for $N/10$ $AgNO_3$ = 0.497
$0.497 = E_0 - .064$
$E_0 = 0.497 + .064 = .561$

The p_{Ag} of a solution at 25° will therefore be given by the formula:

$$p_{Ag} = \frac{0.561 - E}{.0591}$$

During recent years other methods besides the conductivity and transference number methods have been developed for determining the actual ion concentration of the solutions and these tend to show that both the above methods give results which are too low. They indicate that even in normal solutions the ionization is almost 100%. If this be true and $N/10$ $AgNO_3$ is completely ionized, it is easy to show that our assumption, that it was only 81% ionized, can introduce an error of only 0.09 of a p_{Ag} unit. At the present stage of this work such an error is not serious and if it does exist may be legitimately neglected.

The following titrations were made:

$N/10$ $AgNO_3$ titrated by $N/10$ HI, KI, HCl and NaCl.
Silver Oxide by HI.
$N/10$ Protargentum by $N/10$ HI, KI, HCl and NaCl.
$N/10$ Solargentum by $N/10$ HI, KI, HCl and NaCl.
$N/10$ Collargol by $N/10$ HI.
$N/10$ Colloidal AgI (laboratory preparation) by $N/10$ HI.

None of the solutions used for titrating were exactly $N/10$, but all volumes were calculated to the exact $N/10$ basis before plotting the curves. The solutions of

the silver preparations were $N/10$ with respect to total Ag. In the case of Solargentum and Protargentum analyses were available; in the case of Collargol the published analysis was used to determine the amount to be used. Any slight variation in the actual material from the assumed composition would only have the effect of spreading the curve more to the right, or the reverse.

It was impossible to plot on the curves all the points at which readings were taken. But the points omitted in all cases lay as close to the curve as those which were plotted. Many of the titrations were run in duplicate. In these cases only one experiment has been plotted, as the duplicates in all cases agreed well with each other.

Silver Nitrate.—The p_{Ag} of $N/10$ $AgNO_3$ is 1.08 as calculated on a basis of 81% ionization. When it is titrated with KI (Curve "A"), the curve has the same general form as that of the titration of a strong acid by a strong base. The mid-point of the break falls at a p_{Ag} of 7.95. This checks fairly well with the value 7.76, calculated from the solubility of AgI given by Seidell[1] as 0.000 0028 Gm. per liter. If HI is used instead of KI, the same curve is obtained. With HCl (Curve "K") the same type of curve is obtained, but the break does not extend so low, on account of the much greater solubility of AgCl. The mid-point of the break gives a p_{Ag} of 4.9 for pure saturated AgCl solution, which checks well with the value 4.72, calculated from the solubility given by Seidell,[2] 0.0020 Gm. per liter.

Silver Oxide.—Silver oxide was titrated only with $N/10$ HI (Curve "B"). An attempt was made to titrate the silver oxide with $N/10$ KI, but the rate at which equilibrium was established was so slow that it was not practical to make this titration. When silver oxide is titrated with $N/10$ HI equilibrium is rapidly obtained and a smooth curve results. The silver oxide as prepared evidently contained traces of sodium hydroxide, which slightly depressed the solubility. Varying quantities of nitric acid were added to small samples before titration until the ionization level of pure silver oxide was pretty definitely established. A titration was then made on a large sample of silver oxide to which just enough nitric acid had been added to bring it slightly below this ionization level. As the HI was added the potential slowly rose during the first 25% of the titration to a voltage of 0.393, which corresponds to a p_{Ag} of 2.85. This flat portion of the curve extended to 92 cc. where it started to break sharply. The main part of the break was very sharp.

Protargentum.—This was titrated with $N/10$ HI (Curve "C"), $N/10$ KI (Curve "E"), $N/10$ HCl (Curve "L"), and $N/10$ NaCl (Curve "D").

The curves with HI and HCl are practically identical, except that the final ionization levels are different because of the differences in solubility of the iodide and the chloride. The curves of the titration with KI and NaCl are similar in a like respect. Protargentum when titrated did not always give the same original p_{Ag}, the variation being from 2.17 to 2.81. When Protargentum was titrated with HI or HCl the slope of the first 65% of the curve was not great, then the break started. The sharp part of the break started when 75% of the silver had been titrated and this part of the break ended at a point corresponding to 87% of the silver content. The end-point for ionizable silver as determined from the curve was 81.5%. When

[1] "Solubilities of Inorganic and Organic Compounds," 2nd Ed.

Protargentum was titrated with KI or NaCl the curve was of a different character. Here a definite slope started almost from the first and ended at a point corresponding to 77% of the silver content, giving a p_{Ag} at this point of about 8.0. From this point on the curves followed those of HI and HCl.

This difference in the character of the curves obtained in titrating Protargentum with acids and salts having ions which form insoluble silver salts indicates that the ions formed during the course of the titration affect ionization or solubility of the untitrated silver. If the ionizable silver be present in the form of silver oxide the reactions when titrating with an acid and a salt will be as follows:

$$AgOH + HI = AgI + H_2O$$
$$AgOH + KI = AgI + KOH$$

in the first reaction the hydroxyl ion is used to form water and since this is practically undissociated it will have no effect upon the solubility of the Ag_2O which can only go into solution as AgOH. In the second reaction, however, KOH is formed and since in the dilutions used this will be more than 90% dissociated, then by the law of mass action there must be a steady drop in the AgOH ionization as the titration proceeds.

It may be assumed, however, that the ionizable silver is present in the form of silver salts of the amino acids present as a result of the hydrolysis of the gelatine. With this assumption in mind the following equations may be written, in which Ac is used to indicate the acid ion of a silver amino acid complex.

$$AgAc + HI = AgI + HAc$$
$$AgAc + KI = AgI + KAc$$

In this case the effect on the ionization of the untitrated AgAc will be, to all intents, the same as where the ionizable silver was assumed to be in the form of Ag_2O. The HAc formed as per the first equation will in this case be an extremely weak acid and will therefore not repress the ionization of the AgAc. The KAc formed as per the second equation is, however, the alkali salt of a weak acid. Such salts are known to be highly dissociated and the ionization of the untitrated AgAc will therefore be more and more repressed as the titration proceeds. The fact that the effect on the ionization of the untitrated AgAc or Ag_2O is the same when titrated respectively with KI or HI makes it impossible to tell definitely by this method the exact constitution of Protargentum.

The fact that the p_{Ag} of saturated silver oxide and that of Protargentum lay very close together, made us think at first that Protargentum was colloidal silver oxide. But the characters of the titration curves with HI are quite different. That of Ag_2O is typical of a rather insoluble pure compound, while that of Protargentum resembles the titration of a buffer mixture. We therefore believe that Protargentum is mainly a mixture of silver compounds of hydrolyzed protein substances, perhaps mixed with some silver oxide. A p_H determination should show whether this is present, but we have not yet succeeded in making such a determination. A hydrogen electrode gave about the same voltage as had the silver electrode, probably due to precipitation of silver on the electrode. The color of the solution makes the direct indicator method inapplicable.

The results of a dialysis experiment rather confirm this idea. The first three diffusates contained about one-quarter of the total silver, an amount corresponding

quite closely to a saturated solution of silver oxide. But the next three contained only half as much silver as the first three. This would indicate that the bulk of the silver was not present as the oxide, but probably in some more insoluble form. Twenty per cent. of the silver is practically unionized and is probably in the form of colloidal metallic silver.

Salargentum.—This was titrated with $N/10$ HCl (Curve "M"), $N/10$ NaCl (Curve "F"), $N/10$ KI (Curve "E"), and $N/10$ HI (Curve "H"). The addition of the first cc. of $N/10$ HI or KI causes a rapid drop in the silver ion concentration. From here on the drop in ion concentration is rapid until a point corresponding to about 11% of the total silver content is reached. Here the curve breaks off rapidly into the ionization level of silver iodide. This indicates that only about 11% of the silver in Solargentum is present in a form which will ionize to a p_{Ag} of 12.5 or less. The rest of the silver is probably colloidal metallic silver. With NaCl, the curve shows only the mass action of the excess of Cl ions. The original p_{Ag} is less than that of pure, saturated AgCl, but greater than that of AgCl in the presence of an excess of Cl ions, hence this effect. The curve with HCl is so irregular as to be meaningless. We do not know why this is so.

When the ionization level of Solargentum is considered, it appears probable that the ionizable silver of Solargentum is in the form of a silver amino acid complex. We have no definite proof that this is the case, but such compounds are known to form and from the method of manufacture, it seems probable that they could exist in Solargentum. The ionization level of Solargentum does not correspond to any simple compound which could possibly be present.

Colloidal Silver Iodide.—This was prepared by treating $AgNO_3$ with a solution of I in KOH in the presence of hydrolyzed gelatine, dialyzing, and evaporating. Its titration with $N/10$ HI (Curve "J") showed the presence of some soluble iodide. Its initial p_{Ag} was 12.4.

Experimental Part.

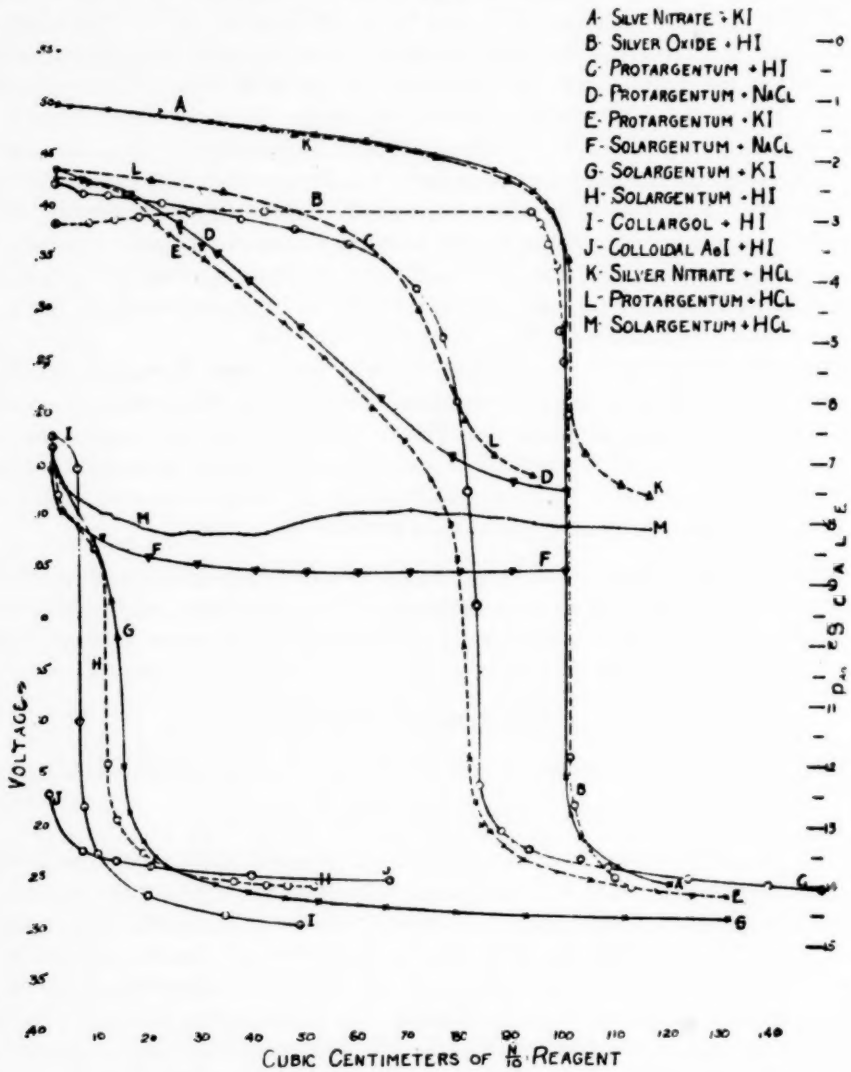
The concentration chain used in the work was made up as follows:

$$Hg \mid HgCl, \text{Satd. KCl} \mid N\ KNO_3 \mid \text{Ag Sol.} \mid Ag$$

The potential measurements were made with a Leeds & Northrup portable potentiometer at room temperature. No attempt was made to carry out the work under constant temperature conditions. The temperature of the solutions ranged from 20° to 30° during the time the work was being carried out, but was generally not more than three degrees removed from 25° C. As was noted before, electrodes in all solutions having a silver ion concentration greater than 3.2×10^{-8} will be positive to the mercury of the calomel half cell, and in solutions below this concentration will be negative. When the silver ion concentration is greater than 3.2×10^{-8} the calomel half cell is connected to the negative terminal, and the silver electrode to the positive terminal of the potentiometer; and when the silver ion concentration drops below this value the connections must be reversed.

The silver electrodes were prepared by soldering pieces of silver wire to leads of copper wire, and cementing these into glass tubes with de Khotinsky cement so that only silver was exposed to the solution. They were then electroplated with a

platinum anode, using 1.5 volts and a $N/100$ solution of $AgNO_3$ containing about three drops of nitric acid in 50 cc. This did not bring them to equilibrium, so they were scraped and made the anode of a cell for about half an hour. They were then replated as before, using fresh solution. After washing, they were in equilibrium. They were kept short-circuited in the plating solution, and tested before use for equilibrium. At no time did they show a potential difference of over 1 millivolt.


A- Silve Nitrate + KI
B- Silver Oxide + HI
C- Protargentum + HI
D- Protargentum + NaCl
E- Protargentum + KI
F- Solargentum + NaCl
G- Solargentum + KI
H- Solargentum + HI
I- Collargol + HI
J- Colloidal AgI + HI
K- Silver Nitrate + HCl
L- Protargentum + HCl
M- Solargentum + HCl
Voltage
Cubic Centimeters of N/10 Reagent

The materials were prepared for titration, in all cases except $AgNO_3$ and Ag_2O, by weighing directly into a beaker the correct amount of material to give 100 cc. of $N/10$ silver and adding 95 cc. of water. The titrations were carried out by adding one or more cc. of reagent at a time and determining the potential of the above concentration chain after each addition. In almost all cases mechanical stirring was used to insure constant equilibrium. In the case of silver nitrate a mea-

sured volume of standard solution was used. In the case of silver oxide a suspension of an unknown quantity of Ag_2O was titrated; at the end of the titration the amount was calculated from the titration curve. With the silver oxide as prepared the titration curve rose slowly till the break came, indicating the presence in the solution of alkali, which repressed the ionization of the silver oxide. By adding varying amounts of nitric acid a curve was finally obtained which was flat until it broke. This showed the absence of excess of either alkali or silver salts, and gave the true p_{Ag} of Ag_2O. For making the titration which has been plotted, HNO_3 was added to the Ag_2O suspension till the p_{Ag} was just below the correct value of Ag_2O.

None of the solutions used were exactly tenth-normal. They were standardized by titrating against a known solution of $AgNO_3$, in the same manner in which all the other titrations were carried out. The results of these titrations were plotted and the end-points read from the curves. The silver nitrate was standardized by precipitating with a slight excess of $N/10$ HCl and weighing the AgCl on a Gooch crucible. After standardization of the solutions the results of the titrations were calculated to a tenth-normal basis by multiplying the reading in cc. by the tenth-normal factor of the solution.

Stable readings on the potentiometer were obtained with no difficulty in all cases, except when the reading of a point on the break of a curve was being made. Here there is no buffer effect, and large voltage changes occur with only small additions of reagent, so complete stability could not be expected.

The original silver ion concentration exhibited by Solargentum seemed to be greatly influenced by the character of the water used in making up the solutions. It was always noticed that redistilled CO_2-free water gave the highest and most regular initial silver ion concentrations.

ABSTRACT OF DISCUSSION.

H. C. Wood: Referring to the curves, I would like to ask what the proportion of total silver in solargentum, for example, is as compared to protargentum? There are evidently three distinct types of curves for these colloidal silvers: one represented by protargentum, the second by solargentum and the third by the colloidal iodide. What are the relative proportion of total silver in these compounds?

I would also like to ask if I correctly understood Dr. Giesy's point that in the protargentum the silver was probably chiefly in the form of a proteinate, whereas in the solargentum it was probably chiefly in the form of metallic silver, but neither of them contain appreciable quantities of peroxide or oxide.

I. M. Kolthoff: Dr. Giesy will agree with me that the difference between the ionogenic silver values in the second column gives an indication about the preferability of these preparations. "Silver that is more ionogenic than silver chloride" gives us an indication of the total silver content and the silver ion concentration. The figures mentioned in the second column give us an indication about the silver ion concentration itself, so the difference between those two gives an indication of the buffer value of the silver ions, and also one can judge about the valuation of these preparations as remedies.

Do you think that the silver which is more ionogenic than silver iodide and less than silver chloride is present as silver chloride? You don't mention that, but I suggest that the difference between the figures in the third and fourth columns is due to the presence of silver chloride.

In Germany very extensive study has been given to this work, not yet published, by Theodore Paul. He told me two months ago when in Germany attending a meeting, that he had given a very extended study to this subject that you have treated, so you can see it is of international importance.

Lyman F. Kebler: Dr. Woods Hutchinson in his book states that the average human being generates in the course of twenty-four hours about two quarts of alcohol. Of course, he said there were experiments under way to show that. However, he gives the impression in his book that this actually occurs, and that is used by some of the people in connection with propaganda I come in contact with.

The question with me is whether these silver preparations will actually inhibit the action of the cells in the stomach. We have these cells in the stomach and they are used every day. If this actually inhibits the growth of these cells, it might be objectionable to some people, while not to others.

P. M. Giesy: Taking up first Dr. Wood's question, I think we can state definitely that compounds of the solargentum and collargol types contain no silver oxide. The ionization of silver oxide you will note is about p_{Ag} 3. None of these compounds ionize more than p_{Ag} 6.5. That, I think, definitely excludes the possibility of silver oxide being present in those materials.

In the case of the protargentum type of compounds, I don't think we can be sure. The curves can be interpreted equally well by assuming that silver salts of weak organic acids are present there, and until we have actually made p_H measurements, we cannot say whether there is any silver oxide present in the protargentum type of compounds or not.

Solargentum contains in the neighborhood of 20 per cent. total silver; protargentum around 8 per cent.

Our solutions were made up so that they were always normal with respect to total silver, so that we used about two and one-half times as much protargentum for titration as solargentum.

Taking up Dr. Kolthoff's questions, I think that the silver more ionizable than silver chloride is a very good indication of the silver buffer effect of these preparations, but I can tell a whole lot more about that from looking at the curves than from any single numerical values. The flatness of the protargentum type of curve shows very well the buffer effect. Of course, there is a slight amount of buffer effect in the case of solargentum and still less in the case of collargol, but there is a little. I think if silver chloride were there we should get a flattening out of the curve at the silver chloride ionization level, that is, at about p_{Ag} 5. We don't get that at all, you see. The curves go on right past that point without any break at all, while you did actually obtain a break there.

I. M. Kolthoff: I carried out my experiments in acid solutions. I think you get it without any acid. I think that gives a great difference. I didn't give all of my results.

I have titrated in alkalinized solutions and obtained silver oxide. I don't know how much, but they all had alkali. You get no great difference, but a far better result if you titrate in acid solutions. I think your results are obtained in the solutions as they are without adding anything.

P. M. Giesy: These are in the solutions without any addition at all. I can see this objection to a titration in acid solution. In the case of protargentum we probably have silver salts of weak organic acids. We add a strong acid, such as sulphuric acid, to that and it is going to raise the p_{Ag}, and we won't have exactly the same material that we would have in a neutral solution. And the presence of that acid is going to keep that p_{Ag} up right straight along, so that the whole curve will lie higher than the curves which we have obtained.

I. M. Kolthoff: My intention was not to show that you have, by titrating in acid solutions, a very easy method to determine all the silver present, but only to show how the silver ionization changes. I can also show you the curves I obtained and they are quite different. The silver concentration is increased by adding acid. It behaves as if there were present silver acid salts of a weak kind.

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NOTES ON THE STANDARDIZATION OF BLOOD COAGULANTS.*

By Alfred T. Perkins and Wyly M. Billing.

In spite of the fact that there are numerous preparations on the market which are recommended for the purpose of quickening the coagulation of blood, there has not as yet been published a satisfactory method of testing their activity. The standardization of blood coagulants differs from the standardization of drugs in that the preparations cannot be made too active, since the stronger they are the better are the results obtained and, consequently, it is only necessary to determine that they possess a certain minimum activity. The preparations on the market consist of three general types—one derived from blood itself containing thrombin, a fibrin ferment (an English product), another type derived from tissues containing cephalin and the third type (also derived from tissues but by a different procedure) containing tissue fibrinogen.

The various preparations as found on the market differ not only in the manner in which they act, which depends on their content of thrombin, cephalin or tissue fibrinogen, but also in their potency, purity and stability.

It should be noted at this point that while the coagulants containing the various active substances will render the blood more coagulable *in vivo* or *in vitro*, each under a certain set of conditions, they all act in a different manner. The thrombin preparations may be injected intravenously (1) under ordinary conditions without causing intravascular clotting and death, but they will almost instantly clot shed blood. Subcutaneous injections are without effect on the clotting time of blood.

The cephalin preparations, while they have a strong coagulating effect on shed blood and recalcified citrated or oxalated plasma mixed with blood serum, will not cause intravascular clotting (2) even though injected in large amounts. The fibrogen (tissue fibrinogen) preparations will cause almost instant death by intravascular clotting (3) when injected intravenously even in small amounts and will greatly reduce the clotting time of recalcified citrated blood or shed blood taken from the animal's heart, uncontaminated with tissue juices. Subcutaneous injections or oral administrations will greatly reduce the clotting time of blood(4 and 5).

In view of the different effects produced by the blood coagulants on the market, it would be impossible to devise a single test which would even indicate the relative merits of all the coagulants, but all of the published tests have much in common. The standard tests are briefly (6) a comparison of the clotting time of blood *in vitro* between samples mixed with the coagulant and those mixed with a similar amount of physiological salt solution. Generally the test is conducted upon citrated or oxalated blood plasma to which some blood serum (for products of the second class) or a calcium salt, has been added at the time of testing to enable coagulation to take place. A qualitative standard is adopted which indicates in a general way the potency of the preparation. While these tests are more or less accurate and comparable results can be obtained when the same plasma is used, they are complicated by two steps—the addition of a decalcifying agent or clot preventive and the readdition of blood serum or a calcium salt. The technique of the tests would

* Scientific Section, A. Ph. A., Buffalo meeting, 1924.

be considerably simplified as well as several possible sources of error eliminated if these two steps could be avoided.

EXPERIMENTAL.

The proposed method is the testing of the effect of a coagulant upon blood drawn directly from an animal. It was early found that the time required for the clotting of blood drawn over a tissue surface, as from the marginal ear vein of a rabbit, decreased with every successive drawing over the same surface. This is manifestly due to the effect on the blood of contact with the exposed tissue. Table I shows the irregularities from tests by this procedure. Table II shows that when the blood is drawn directly from the heart with a well-oiled syringe uniform results can be obtained on each animal. Table III shows the effect of the coagulant when blood so drawn is divided into two parts, one part being mixed with a coagulant and the other with a physiological salt solution. Unstarved rabbits were used. Table IV shows the results obtained when starved animals were used. That the coagulation time is affected by the state of digestion has been shown by Mills (7). These results show that it is important to use animals that have been starved. A period of 24 hours was found to give good results.

TABLE I.

THE CLOTTING TIME IN MINUTES OF SUCCESSIVE BLEEDINGS FROM THE SAME VENOUS PUNCTURE.

Rabbit.	From fresh puncture.	After 5 minutes.	After 10 minutes.	After 15 minutes.
No. 10	4.15	3.50	2.80	1.70
No. 13	3.62	1.75	2.30	1.40
No. 9	2.80	1.15	1.80	1.50
No. 12	3.20	2.30	1.60	1.00

TABLE II.

NORMAL CLOTTING TIME OF RABBIT BLOOD OBTAINED BY HEART PUNCTURE.

		Clotting time, minutes.				
Date of test.	Rabbit.	1st.	2nd.	3rd.	4th.	Average.
5–14–24	No. 10	3.09	3.45	3.50		3.35
5–14–24	No. 7	4.10	4.25	3.50		4.27
5–14–24	No. 9	4.30	4.40	4.15		4.27
5–15–24	No. 9	3.20	3.24	3.30	3.15	3.30
5–15–24	No. 7	2.70	2.65	2.40		2.58
5–15–24	No. 32	2.60	2.90	2.70		2.73

TABLE III.

EFFECT PRODUCED BY THE SAME LOT OF TISSUE FIBRINOGEN ON THE CLOTTING TIME (IN VITRO) OF BLOOD DRAWN FROM SEVERAL UNSTARVED RABBITS.

		Clotting time in minutes.		
Date of test.	Rabbit.	Blood + salt average 2 tests.	Blood + coagulant average 2 tests.	% Reduction.
5–26–24	No. 10	4.00	4.60	15*
5–26–24	No. 35	3.35	1.60	.52
5–26–24	No. 9	3.80	3.10	18
5–26–24	No. 36	3.85	2.15	44
5–26–24	No. 37	2.90	2.05	29
6–3–24	No. 9	2.95	1.25	58
6–3–24	No. 35	2.85	0.95	67
6–3–24	No. 13	2.70	0.70	74
6–3–24	No. 36	3.05	0.50	84
6–3–24	No. 59	2.50	0.80	68

* Increased.

TABLE IV.

EFFECT PRODUCED BY THE SAME LOT OF TISSUE FIBRINOGEN ON CLOTTING TIME (IN VITRO) OF BLOOD DRAWN FROM SEVERAL STARVED RABBITS.

Rabbit.	Clotting time of blood. Normal, average 2 tests.	With fibrogen, average 2 tests.	% Reduction of clotting time.
No. 9	3.55	1.15	68
No. 12	2.30	0.95	59
No. 13	2.85	0.97	66
No. 35	3.25	1.10	66
No. 36	3.20	1.30	60
No. 59	2.90	1.10	63
No. 10	3.40	1.15	67
		Average reduction	64%

TECHNIQUE.

Into a depression of a clean porcelain spot plate which has been kept at room temperature (25° C.) one standard platinum loop (1 mm., or about 1/100 cc.) of a physiological salt solution is introduced and a similar amount of the coagulant to be tested, is placed in an adjacent spot. One cubic centimeter of arterial heart blood is now withdrawn from the test animal, a starved rabbit, by means of a well-oiled syringe fitted with an 18 gauge $1^1/_2$-inch needle. The puncture is made through the 5th inter-costal space into the left ventricle. If by accident venous blood is obtained, it is discarded. Half of the blood so obtained is mixed with the salt solution and the other half with the coagulant. The clotting time is determined as the elasped time between mixing the blood with the coagulant and the first appearance of a fibrin thread. The fibrin threads are demonstrated by drawing fine L-shaped glass rods through the blood at the rate of 5 or 6 times per minute until a visible fibrin thread is picked up.

Since the normal clotting time of the blood obtained from various rabbits varies, percentage reductions in the clotting time have been calculated.

SUMMARY.

The accepted methods of testing the activity of blood coagulants are complicated by two steps which can be avoided and are subject to variation owing to the source and age of the citrated plasma. The proposed method eliminates these factors and is accurate when employed under controlled conditions of temperatures, etc.

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THE STANDARD FOR ASSAY OF PITUITARY SOLUTION U. S. P. X.*

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The Bureau of Chemistry, through its Pharmacological Laboratory, has undertaken to provide Bio-Assay standards. These are to be prepared as described in U. S. P. X. and to be made available some time before it goes into effect. The standard pituitary powder has been prepared and is now ready for distribution.

On August 11, 1924, there were received from the laboratory of one of the large packing houses 115 grams of fresh posterior lobes of pituitary glands in acetone. These glands were at once worked up according to the suggested method of preparation of the official standard as follows:

The glands were cut into small bits with scissors, placed in about 1500 cubic centimeters of dry acetone and allowed to stand over night. The following day the acetone was decanted off, the material placed on watch glasses and dried in vacuum desiccators over fused calcium chloride at a temperature of 25° C. The following morning the dry material was rubbed up in a small agate mortar until it passed through a No. 40 sieve. For the large amount of glands used this was a somewhat laborious process. For smaller amounts it would not be so tedious. There was a small residue of connective tissue that did not grind up well and was discarded; this weighed 0.63 gram. The powdered material was again placed in the vacuum desiccators and dried over night. The following day it was transferred to two extraction thimbles and extracted for three hours with dry acetone in Soxhlet extractors. The powder was then spread on a large watch glass and dried in the vacuum desiccator over calcium chloride. For the present it has been preserved in this manner, with the desiccator kept in a light-proof cupboard. Later the powder is to be divided into small lots and placed in ampuls. The yield from 115 grams of fresh gland was 17.9 grams of powder.

This material was then compared with earlier preparations made by the same method, as follows:

On August 18, 1924, a solution of this powder was made in the following manner: Twenty-five milligrams were weighed out and transferred to a small agate mortar. A burette was filled with 0.25% acetic acid and the reading noted. One or two drops of acid were added to the powder from the burette and the mixture rubbed thoroughly with the pestle until it became of an "impalpable frothy consistency." It is necessary to be careful not to add too much acid at the beginning or the material will not rub up easily. After the material was thoroughly triturated, more acid was added until a uniform suspension resulted; three or four cubic centimeters of acid are sufficient for this purpose. The suspension was then transferred quantitatively to a small beaker, washing out the mortar with successive portions of dilute acid from the burette. Finally enough acid from the burette was added so that there was exactly one cubic centimeter for each milligram of powder taken. The beaker was covered with a watch glass and the contents brought to a boil. The

* Published by Permission of the Secretary of Agriculture.

suspension was then filtered through a small moist filter paper into a graduated cylinder. After cooling, 0.25% acetic acid was added through the filter to wash and to bring the solution exactly up to the original volume. There is a possibility of slight loss at this point by the retention of some active material in the fluid that remains in the paper. By using the dilute acid to wash and at the same time to replace the fluid lost by evaporation during boiling, the loss becomes exceedingly small. One cubic centimeter of this solution contains the activity of one milligram of the standard powder. One cubic centimeter portions of the clear fluid were then measured carefully into hard glass ampuls, which were sealed and sterilized in free steam for twenty minutes on three successive days. At the same time and by the same method, solutions were made of a similar powder prepared by the senior author in the Pharmacology Laboratory of the University of Michigan, December 17, 1923[1], and from one of the original powders of Smith and McCloskey,[2] received by the Bureau of Chemistry about January, 1924. When solutions of these three powders were compared by the isolated uterus method of assay, it was found that they were uniform in strength.

The uniformity of the various preparations made by Smith and McCloskey had of course been pointed out by them in their original publication[2] and was confirmed by Nelson[1], who also demonstrated the feasibility of repeating the process and obtaining powders of similar strength. It was in fact this possibility of reduplication that led to the recommendation that this preparation be adopted as the U. S. P. standard.[1] The fact, that by working with relatively large amounts of material it has again been possible to reduplicate this powder as shown by the fact that solutions of it have the same activity as similar solutions of the powders made by Smith and McCloskey, and by Nelson in another laboratory, is additional important confirmation of the conclusions previously reached, and should add to the confidence with which this standard is received by the manufacturer.*

It might be pointed out that the actual yield of dry powder per gram of fresh gland is the same as that obtained by Smith and McCloskey. They give as the average of seven preparations that one gram of powder is obtained from 6.4 grams of fresh gland. In this laboratory the yield from 115 grams was 17.9 grams of powder or one gram of powder for 6.4 grams of fresh gland by weight, exactly the figure obtained by the earlier authors. One gram of powder corresponds by assay to a little more than seven grams of fresh gland, instead of 6.4 grams. The U. S. P. X. requirement, that one cubic centimeter of finished pituitary solution shall have the same activity as that possessed by five milligrams of powder, then means that it shall contain the activity of about 35 milligrams of fresh gland, or be a 3.5% solution of fresh posterior lobe.

Summary.—There has been prepared in the Pharmacology Laboratory of the Bureau of Chemistry according to the proposed directions for the U. S. P. X. about eighteen grams of desiccated, defatted, powdered posterior lobe of the pituitary gland. This material corresponds in activity with other available samples prepared in other laboratories by the same method. It is hoped and believed that

[1] E. E. Nelson, Jour. A. Ph. A., XIII, 426, 1924.

[2] M. I. Smith and W. T. McCloskey, "Public Health Report," March 16, p. 493, 1923.

* Dr. H. H. Dale, in personal communications to Dr. C. W. Edmunds, reports that he finds a uniformity in successive preparations of this powder prepared in his laboratory.

these results will add to the confidence of the manufacturers of pituitary solution in the proposed U. S. P. X. standard and method of assay.

BIO-ASSAY OF VERATRUM PREPARATIONS.

BY L. W. ROWE.

Within recent years it has been concluded by several authorities that the chemical estimation of the alkaloidal content of veratrum preparations is not indicative of corresponding therapeutic value and that a physiological test should be used. As far back as 1905 Houghton and Hamilton (1) published an article on a new aqueous veratrum preparation called "Veratrone" which was "adjusted to one-fourth the strength of the U. S. P. fluidextract *by determining the M. L. D. per Gm. body weight for frogs* of the same species and weight kept under uniform conditions, comparing the results with those obtained from the injection of known quantities of the U. S. P. fluidextract of veratrum viride." Twelve years later, in 1917, Pilcher (2) reported a large number of physiological experiments and concluded that, for practical purposes, the fatal dose for frogs would seem to be satisfactory.

Since 1905, Veratrone has been standardized by the physiological method proposed by Houghton but there are some disadvantages to this method, the chief of which is the indefiniteness of the end-point. Frogs injected with a lethal dose of veratrone may still be just alive 18 or even 24 hours after being dosed. A whole series of frogs given graded doses may be found 15 hours later to be more dead than alive, but still they are not dead and even a skilled technician hestitates about drawing any conclusion. Such a condition necessitates the use of a large number of frogs before a conclusion can be reached and thus renders the assay very expensive in amount of material used and the time required.

The comparative inexpensiveness of the white mouse first caused us to consider it as a suitable substitute for the frog in standardizing veratrum preparations. After using this animal for testing a number of preparations in comparison with the frog several advantages were discovered, the chief one being the rapidity and definiteness with which an assay can be carried out when white mice are used.

The mice are carefully weighed to within 0.5 Gm. and injected intraperitoneally with such a dilution that the total volume of the dose is not greater than 1 cc. The mice are very quickly affected and final results may be read within 30 minutes after injection, as it is very rare that a mouse dies after that period and then it is doubtful whether reliance could be placed in such delayed results.

The table on the following page gives the M. L. D. found on frogs and white mice for a number of veratrum preparations:

This series of tests has shown several facts when the results are carefully analyzed.

The M. L. D. of an average or standard F. E. Veratrum Viride should be 0.00025 cc. per Gm. body weight of white mouse administered intraperitoneally. Veratrone, an aqueous solution of veratrum adjusted to one-fourth fluidextract strength should have an M. L. D. for white mice of 0.0010 cc. per Gm.

Sample.	M. L. D. frogs.	No. of frogs used.	M. L. D. to white mice.	No. of mice used.
Veratrone Rx 728,660	0.0030 cc. per Gm.	30	0.0010 cc. per mg.	20
Veratrone Rx 069,133	0.0025 cc. per Gm.	20	0.0015 cc. per mg.	18
Veratrone Rx 071,523	0.0025 cc. per Gm.	25	0.0010 cc. per mg.	10
Veratrone Rx 072,584	0.0030 cc. per Gm.	35	0.0008 cc. per mg.	7
Veratrone Rx 752,757	0.0018 cc. per Gm.	35	0.0009 cc. per mg.	19
Veratrone Exper.	0.0035 cc. per Gm.	25	0.0020 cc. per mg.	17
Veratrone Exper.	0.0025 cc. per Gm.	25	0.0010 cc. per mg.	15
F. E. Ver. Vir. Rx. 746,868	0.0008 cc. per Gm.	20	0.00025 cc. per mg.	16
Veratrone Dil. Sample A.	.....	..	0.012 cc. per mg.	24
Veratrone Dil. Sample B.	.....	..	0.0055 cc. per mg.	11

The number of mice required for an assay is definitely less than the number of frogs reqired for an assay the average being about three-fourths.

The period of time required for an assay when mice are used is much shorter than that necessary when frogs are used.

The mouse method is less expensive and more practical than the frog method.

In order to determine definitely whether the mouse test is fully as accurate as the frog test, when each is properly applied, a series of two unknowns were tested on white mice. These two samples represented definite dilutions made from two of the samples tested above and were entirely unknown to the technician who conducted the test until after the result was definitely determined. Sample "A" was a 1 to 8 dilution of Rx 069,133. Since Rx 069,133 had an M. L. D. of 0.0015 cc. per Gm. to mice a 1 to 8 dilution should have an M. L. D. of 0.012 cc. per Gm. and this is the result reached experimentally. Sample "B" was a 1 to 5 dilution of Rx 071,523. This Rx had an M. L. D. of 0.0010 cc. per Gm. so a 1 to 5 dilution should have an M. L. D. of 0.0050 cc. per Gm. The result determined experimentally was 0.0055 cc. per Gm. which was but 10% higher than it should be.

The test of these unknowns has demonstrated the accuracy of the method.

With these several points in its favor the Bio-Assay of veratrum preparations by determining their M. L. D.'s to white mice is a natural forward step.

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(2) Pilcher, *Amer. Jour. Phys.*. 44, 1, 1917.

FROM THE MEDICAL RESEARCH LABORATORIES,
PARKE, DAVIS & CO., DETROIT.

THE U. S. AND BRITISH OPIUM PROPOSALS.

America wants opium smoking stopped entirely within ten years. Great Britain, through Lord Cecil of Chelwood, announced that she stood ready to stop it in fifteen years, but conditionally.

Britain's condition is that the fifteen years shall begin to run only from the time when China will have reduced the raising of opium to such a stage as "will remove the danger of opium smuggling from China into other Far Eastern territories."

The American position is that the danger of smuggling may continue to exist indefinitely, thus postponing forever the inauguration of the British suggestion.

THE EDUCATIONAL VALUE OF A MEDICINAL PLANT GARDEN.*

BY C. J. ZUFALL.

Medicinal Plant Gardens are of educational value to several classes of people. They are conducted by many schools of pharmacy both in this country and abroad and were established primarily for the benefit of the students of such schools. But, they may reach other groups of people as well. People of the community with an interest in "where things come from" may acquire such information from them by a single visit, and every school should endeavor to arouse this interest in the community.

Students of botany in college and high school may have their interest in the subject stimulated by a visit of a few hours to one of these gardens.

Physicians and pharmacists who are interested in broadening their knowledge have an opportunity to learn about the plants which supply the substances they prescribe and dispense.

It is the education of the pharmacy student, however, that we are mostly concerned with. And we want these students to do more than acquire facts, we want them to train their minds to *observe carefully*. I believe that a medicinal plant garden in a college of pharmacy may be used to bring about this training in proper observation.

The purpose of the medicinal plant garden in many schools may be solely to acquaint the students with some of the plants from which medicinal substances are obtained. This is very valuable to the student of pharmacognosy and considerable time should be spent in the garden to permit these acquaintances. In addition to this, however, the student may actually collect specimens of many of them. These should be dried and compared with commercial samples. It would be a good idea to have him press some of the leaf-drugs, such as Belladonna, Hyoscyamus, Stramonium, Digitalis and Peppermint to use in the laboratory study of these drugs. It is obvious that these will give a much better idea of the size and shape of the leaves than the ordinary dried drug. Pressed specimens of the flowers such as Matricaria, Arnica and Calendula may also be made and used in the laboratory study of these drugs.

The medicinal plant garden will serve to explain the reason for certain statements found in the Pharmacopœial descriptions of crude drugs. For example, the U. S. P. requirement that Hyoscyamus shall consist of the "leaves and flowering of fruiting tops." We may take the student to the garden and show him the two stages of Hyoscyamus, the first-year plants and the second-year plants. We can explain to him how this plant requires two years to flower and bear fruit. The first-year plants, bearing a large rosette of leaves on the ground, are quite a contrast to the tall flowering stalks of the second-year plants. The student should then be told that the authorities are of the opinion that the leaves of the second-year plants are the better for medicinal purposes and that the flowering or fruiting period is considered the best time to gather leaves. He will then understand why flowers or fruits are usually found in the official Hyoscyamus. This explanation will leave a more lasting impression on the student than a simple lecture-room statement of the facts.

Another very good object lesson is that of producing opium in the class room.

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* Scientific Section, A. Ph. A., Buffalo meeting, 1924.

One may incise an unripe poppy capsule in the same manner in which it is done in the opium fields of the Orient, show the milky exudate, and then exhibit another pod which was incised the day before and on which the exudate has turned brown; the student will thereby have been taught a lesson which would have required him ten times as long to learn from a textbook. The student may be permitted to taste the exudate and learn that this is bitter. He should then be told that alkaloids, such as morphine, are bitter and, of course, alkaloid-bearing drugs are bitter. The student could be shown that it would be a tedious task to gather opium from such small pods but that in the warmer Oriental countries the pods of the poppy are much larger.

To examine Triticum, as found on the market, the student would not think of it as being the underground stem of a plant, but if he pulls up a Triticum plant and sees the rhizome he would always remember the source of the drug.

Peppermint and Spearmint have very much the same appearance in the dry condition as found on the market and are difficult to distinguish between, but when the two are seen growing in the garden their differences can readily be seen.

A visit to the grove of the garden reveals the shade-loving plants such as Hydrastis, Podophyllum, Sanguinaria and Asarum. Here the instructor could give a short discourse on these plants, telling how they would die if exposed to the full sunlight for even a short period of time. He could also bring out the fact that all these shade-loving drug plants are natives of America. Two or three of the Podophyllum plants could be pulled up and the students shown how several plants are attached to the same rhizome. This illustrates one method this plant has of reproduction. The parent plant sends out rhizomes which in turn send up the leaves at short intervals and in this manner a "colony" is soon formed which sometimes covers a large area. The rhizome, which is responsible for the formation of so many plants, along with the roots, forms the drug.

The Belladonna beds, where the experiments are carried on to determine the possibility of increasing the alkaloidal content of the drug, help to fix in the mind of the students the fact that the alkaloidal content is important. The breeding experiments should also be instructive and interesting to the class in botany, as here the students can be shown how the crossing and selecting of plants are carried on.

The student may collect samples of such drugs as Coriander, Fennel and Anise at different stages of maturity and determine the oil content at each stage. Since the value of these drugs depends upon the oil-content, the student learns that the time of collection is an important factor in obtaining good drugs.

A similar series of experiments may be carried on with some of the root-drugs. When these are collected out of season they show their inferiority. The much-wrinkled and dried-up rhizomes of such drugs as Podophyllum and Sanguinaria which have been collected in mid-summer bear a striking contrast to the smooth plump rhizomes of the same plants which have been collected in the Spring or Fall.

Another way in which the medicinal plant garden may be made valuable to a school is in supplying material for the classes in botany and microscopy. The plants growing in such gardens have a great variety of form and structure and represent many families. For a study of leaves, a class will find here a great variation in size, shape, texture, covering, etc. In our gardens we have the thread-like leaves

of Matricaria to contrast, in size, with the enormous leaves of Rhubarb. There are smooth leaves of Belladonna to compare with the woolly leaves of Mullein and Coltsfoot. The leaves of Grindelia are so saturated with resins that they are sticky to the touch and the plant is known to some as "Gum-plant." The leaves of Sassafras, Cannabis, Salvia, Ricinus, etc., make interesting material for such studies.

For studies of flowers and stems there will be found sufficient material to illustrate most every type, and the same may be said about all the other plant organs.

There is much valuable material in a medicinal plant garden for the microscopical study of plants. We may cite as an example the hairs or trichomes of our medicinal plants, some of which are quite interesting. The glandular hairs of Peppermint, Spearmint and Pennyroyal which contain the volatile oil; the glandular trichomes of Hops which constitute the drug Lupulin; the peculiar stellate hairs of Mullein Flowers; the multiserriate hairs of Arnica Flowers; the long hairs of Hyoscyamus, and the various forms found on other drugs serve for further investigation of plant hairs.

For a study of calcium oxalate crystals the student will find all forms in a medicinal plant garden if he will go to such drugs as Belladonna, Hyoscyamus, Stramonium and Squill.

The internal structure of the leaves, stems and roots of the medicinal plants show a variation sufficient to cover practically all types of these organs. An interesting discussion of the way in which Nature distributes her volatile oils to various organs of different plants could be brought up in a visit to our gardens. The sweet perfume of the Rose and Lavender resides in the flowers; the popular flavors of Peppermint and Spearmint reside in the glandular hairs of the leaves and stems of the plant; the pleasing odor of Sassafras oil originates in the bark of the root; Wild Ginger and Orris Root produce their pungent odors in the underground stem; the umbelliferous plants such as Anise, Fennel, Coriander and Caraway store their volatile oils in the fruit. And so we have every organ of the plant furnishing a desirable volatile oil.

ABSTRACT OF DISCUSSION.

Arno Viehoever called attention to the work of Luther Burbank, and of other horticulturists; of the development of hardy fruits that will withstand higher or lower temperatures, as may be necessary; of changing size and colors of flowers; larger food value, etc.; but, he said little had been done in the development along related lines of medicinal plants, and such gardening should be encouraged.

Caswell A. Mayo referred to recent books on flower culture and making the soil suitable for plants. The books referred to by the latter speaker were "Taming the Wilderness" and "American Wild Flowers."

PURDUE UNIVERSITY,
SHOOL OF PHARMACY,
LAFAYETTE, IND.

PASTEUR MEMORIAL IN CHICAGO.

The Pasteur Memorial Committee (108 So. LaSalle St.) of more than 100 prominent Chicagoans is at work trying to raise a $100,000 fund with which to establish a monument to Louis Pasteur, famous French Scientist, in Chicago, and also a research scholarship which will be national in scope and open to all American students.

A CHEMICAL EXAMINATION OF THE ROOT OF LEPTOTÆMIA DISSECTA.*

BY NELLIE WAKEMAN.

In April 1923 there were received from Dr. E. T. Krebs of the Balsama Company of San Francisco, California, 100 lbs. of root of *Leptotæmia Dissecta* collected during the previous summer in the high Sierras. According to Dr. Krebs' letter the plant from which the root was collected has been identified by Professor Smiley of the University of California. (Letter to Professor Kremers under date of April 13, 1923.) "Other botanists," the writer adds, "classified it differently, but probably due to specimens reaching them in poor condition."

The following additional information taken from the letter referred to above should prove of interest:

"The plant grows on the eastern side of the Sierras at an elevation of 5000 feet or more and only on the east and south slopes. It comes up in March, blooms in May and dies in August of the average year. We have found it as far as the Oregon line north and as far south as Owens Lake in Inyo County. It is the sacred plant of the Washoe Indians who formerly ran over this area, and is called by them *Dortza*. The roots shoot up one stalk the first year and each succeeding year another stalk. Therefore, a plant with eight or ten stalks or knobs on the top of the tuber is estimated to be that many years old. It grows under grease wood, sage brush or other high brush, as a rule, and if the Leptotæmia root is near the root of the brush the latter dies.

"It might interest you as preliminary information to know that I have separated from the root the following: sugars, gums, resins, fixed oil, volatile oil, a neutral principle and an acid. No alkaloids are present so far as I could determine. It contains a large amount of sugars. The gum is about twenty per cent. by weight of the dried root. The fixed oil is also in large amount. I am interested if it contains any natural esters."

All of the ground root, 100 pounds, was placed in the 60-liter copper still of the station which is operated with steam under pressure from the Central Heating Plant. The original oil weighed 178 grams. The large volume of aqueous distillate was cohobated yielding 9 grams of cohobated oil, a total of about 0.42 p. c. By distilling the alcoholic extract of the root 35 grams more of volatile oil were obtained and by cohobating the aqueous distillate, another 40 grams, making in all 274 grams of volatile oil, a little less than 0.6 p. c.

For both the original oil and the cohobated oil the ordinary physical constants were taken. The cohobated oil was dried over calcium chloride on account of its turbidity.

	Original oil.	Cohobated oil.
Density	0.936 (at 24°)	0.917 (at 20°)
Angle of rotation	−4.16 (at 25°)	−1.90 (at 23°)

It is worthy of note that the density of the cohobated oil is less than that of the original oil.

After distilling off the volatile oil the root was thoroughly extracted with alcohol and the alcohol evaporated. About 25 liters of extract remained. This separated into two layers, a thick, black oily portion and a dark colored aqueous portion.

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* Scientific Section, A. Ph. A., Buffalo meeting, 1924.

All of the foregoing work was carried out by Dr. R. E. Kremers and Carl Kremers during the spring and summer of 1923. In October 1923 the material was turned over to the writer.

THE VOLATILE OIL.

The physical constants of the oil remained unchanged. The oil was slightly acid to litmus paper but showed practically no diminution when 10 cc. were shaken in a cassia flask with 5 p. c. sodium hydroxide solution. Phenols are therefore absent. It gave no reaction for aldehydes when treated with Schiff's reagent. Saponification with alcoholic potash showed an ester content of 14–15 p. c., calculated as menthyl acetate, or about 18 p. c. calculated as menthyl valerianate, in the original oil, and in the cohobated oil 20–22 p. c., calculated as menthyl acetate or 24–25 p. c., calculated as menthyl valerianate. Acetylization and subsequent hydrolysis showed total alcohols to equal 34 p. c. in the original oil, calculated as menthol, and 49–50 p. c. in the cohobated oil.

The original oil was now hydrolyzed by the use of potassium hydroxide in alcohol, the alcohol was evaporated and the oil distilled with steam; 82 p. c. of the oil being recovered.

The alkaline aqueous residue was made acid with sulphuric acid and the volatile acid thus liberated was distilled off. Both barium and zinc salts of this acid were prepared. The barium salt was slow to crystallize, but finally good crystals of both salts were obtained. The acid radicle of the former was determined by precipitating the barium as barium sulphate, also by double decomposition with silver nitrate and subsequent silver determinations. The zinc in the zinc salt was determined as both oxalate and carbonate. All the results indicated valeric acid. During the distillation and the concentration of the salt solutions a marked celery-like odor was noted.

The saponified oil, 135 cc., was distilled under ordinary pressure. Fractions were collected as follows:

150 degrees–200 degrees	26 cc.
200 degrees–230 degrees	19 cc.
230 degrees–250 degrees	25 cc.
Above 250 degrees (Residue)	62 cc.

The first three fractions were practically colorless, but when 250° was reached the oil began to turn yellow, indicating decomposition. The heat was therefore discontinued.

These fractions were again refractionated under diminished pressure, beginning at 25 mm. and working down to 7 mm. pressure. No fraction of more than 25 cc. was obtained within a temperature range of 10°. The specific gravity of the fractions increased gradually from 0.86 in the lowest, to 0.95 in the highest boiling fraction.

While redistilling the original 2nd fraction (200° to 230° under ordinary pressure) a solid white substance, resembling borneol in appearance, separated in the condenser. This was collected in the fractions boiling at 120° to 130°, and 130° to 140°, under 25 mm. pressure. These fractions were tested for borneol by the bornyl phenylurethane method, according to Bertram and

Walbaum (*Jr. f. prakt. Chem.*, 49, p. 5). No bornyl phenylurethane was obtained. Repeated attempts to form crystalline derivatives of alcohols, from these and other fractions, met with negative results, though identification by means of benzoic and phthalic acid esters and phenyl- and naphthyl-urethanes was tried several times.

THE ALCOHOLIC EXTRACT.

The large volume of alcoholic extract, from which the alcohol had evaporated, formed two distinct layers. These were separated by means of a separatory funnel. About $4^1/_2$ liters of a dark oily portion were obtained and, perhaps, 5 times that volume of an aqueous portion. Both portions were strongly acid to litmus.

Acid and saponification values of the oily portion were determined with the following results:

	Sample I.	Sample II.
Acid value	108.5	115.0
Saponification value	220.8	218.0

The oily portion was now placed in the large still and distilled with steam. About 35 cc. of volatile oil with a marked odor recalling both chloroform and petroleum ether and a large volume of acid aqueous distillate were collected. It was afterwards learned that both chloroform and xylene had been added to the extract to preserve it after the alcohol had evaporated off. The oil was therefore contaminated with these substances.

Acid and saponification numbers of the nonvolatile portion of the oily extract were now obtained. These are here tabulated, for purpose of comparison, with those obtained before distilling off the volatile portion.

	Before distillation.		After distillation.	
	Sample I.	Sample II.	Sample I.	Sample II.
Acid value	108.5	115.0	125.0	126.9
Saponification value	220.8	218.0	161.8	169.5
Ester value	112.3	103.0	36.8	43.1

From the above it will be seen that while the total acid value of the oily extract had considerably diminished, it had been at the expense of the esters, while the free acid content of the extract had been increased.

The acid distillate was now neutralized with sodium carbonate, then cohobated and recohobated, until it was reduced to about 2 liters. By this process another 40 cc. of oil was obtained. The specific gravity of this oil was 0.955 at 20 degrees. Its odor recalled geraniol. Ester and alcohol determinations gave 24 to 25 p. c. of the former, calculated as menthyl valerianate, and 49 to 50 p. c. total alcohols, calculated as menthol.

The aqueous distillate (2 liters) was distilled fractionally. It began to boil at about 60 degrees. Fractions were collected as follows:

60–70°; 70–80°; 80–95°; 95–99°.

None of the fractions responded to tests for aldehydes. The three lower fractions gave tests for ethyl alcohol and for methyl alcohol. The ethyl alcohol test means nothing, however, since that alcohol had been used for extracting the

drug. An odor suggesting nitrogen bases was noticed while distilling, therefore the fraction boiling between 95 degrees and 99 degrees was collected in hydrochloric acid. The crystalline hydrochloride was obtained by evaporation. This was dissolved in alcohol and precipitated by acid platinic chloride solution. A bright yellow precipitate was obtained. This was found to contain 41.9 p. c. of platinum. By computation, the platinum content of the platinic chloride double salt of methylamine hydrochloride, $(CH_3NH_3)_2PtCl_6$, was found to be 41.3 p. c. The basic substance is therefore, undoubtedly, methylamine.

The sodium salt of the acid, remaining in the still, was crystallized and the acid was determined as before through the silver and zinc salts. Like the acid in the volatile oil, it was found to be valeric acid. Here, again, in evaporating the salt solutions to crystallization a strong celery-like odor was noticed.

SUMMARY.

The root of *Leptotæmia dissecta* contains about 0.6 p. c. of a volatile oil of high boiling point and high specific gravity. The oil is devoid of aldehydes and phenols, but contains 20–30 p. c. of the valeric acid ester of an as yet unidentified alcohol, and about as much free alcohol. From the fraction of saponified oil boiling between 200 degrees and 230 degrees a white crystalline substance separated while redistilling under diminished pressure.

The alcoholic extract of the drug separated, after the evaporation of the solvent, into an aqueous and an oily layer, both acid in reaction. The oily layer contains much acid and ester. In the aqueous distillate from this oily portion valeric acid, methyl alcohol and methylamine have been identified.

Further work is in progress, especially upon the oily and the aqueous extracts, of which a considerable quantity remains. This will be reported upon later.

LABORATORY FOR PHARMACEUTICAL AND PLANT CHEMISTRY,
UNIVERSITY OF WISCONSIN, MADISON.
AUGUST, 1924.

THE VOLATILE OIL OF MENTHA CANADENSIS L.*

BY ROLAND E. KREMERS.[1]

The statement which is frequently made that the Japanese menthol-producing peppermint is a variety of the species *Mentha arvensis*, makes it very desirable to investigate the native American mints of the *arvensis* and *canadensis* species. It is to be expected that such studies will not only help to clear up the relationships existing between the various plants, but that they ought also to throw light on the general mechanism of oil production.

Through the kind coöperation of Mr. O. A. Beath of the Wyoming Experiment Station, Laramie, a large quantity of *Mentha candensis* herb was received for investigation. The material was collected in Plumbago Canyon, Albany County, Wyo., August 20–23, 1922, at an altitude of 7000 feet. The plants were mostly in bloom

* Contribution from the Wisconsin Pharmaceutical Experiment Station. Studies in the Genus *Mentha V.*

[1] National Research Council Fellow in Chemistry.

at the time; of the original 1000 lbs. gathered, 144.5 lbs. of air-dry drug were received at Madison. The loss due to water content is accordingly about 85.5 p. c. in this instance. The distillation was immediately carried out under the supervision of Prof. W. O. Richtmann; the primary distillation was performed by G. Bents, the cohobation by G. C. Jenison. The yield of primary oil amounted to 1175 Gm., an additional 245 Gm. was obtained by cohobating the aqueous distillate, giving a total of 1420 Gm. This represents 2.16% based on the air dry herb; the cohobated oil amounted to a 20.85% increase over the primary oil.

Physical and Chemical Constants.—The following data were obtained by the determination of certain physical and chemical constants.

		Original oil.	Cohobated oil.
Density 25	=	0.931	0.937
n_{D25}	=	1.4835	1.4852
α_{D25}; 10 cm. tube	=	+18.75°	+20.60
Pulegone neutral sulfite assay	=	90.0 p. c.	95.0 p. c.
Acid No.	=		5.6
Ester No.	=	11.2	11.2
Per cent. ester	=	4.0 p. c.	4.0 p. c.
Ester no. after acetyl	=	33.6	
Per cent. total alcohol	=	9.6	
Per cent. free alcohol	=	6.5	

Fractionation.—A liter of oil was fractionally distilled in a vacuum three times through a 15-inch Vigreaux column. The final series of fractions and their constants were as follows:

Frac.	B. P.	Vol.	d_{22}	N_{22}	α_{22}
	22–24 mm.				
1.	−90° C.	39 cc.	0.8488	1.4678	−45.1°
2.	90–00°	9 cc.	0.8582	1.4690	−26.1°
3.	100–10°	22 cc.	0.9052	1.4742	+16.1
4.	110–14°	41 cc.	0.9260	1.4795	+26.2°
5.	114–16°	808 cc.	0.9332	1.4845	+22.9°
6.	116–20°	35 cc.	0.9296	1.4862	+19.4°
7.	120°+	36 cc.			
	Water and loss	10 cc.			
		1000 cc.			

Examination of Fractions.—Fractions 1 and 2 were mixed and examined together because of the similarity of their physical properties. A trace of acid was present as indicated by most blue litmus. This was removed by sodium bicarbonate solution. The disagreeable component of the odor of this fraction was also removed by this treatment. Schiff's reagent failed to show the presence of any aldehyde.

Following this, the oil was twice distilled over metallic sodium. The resultant material gave the folowing data:

B. p. 25 = 70–76° C., with oil bath at 95–110° C.
Vol. = 30 cc.; d = 0.839; n = 1.4672; α = −52.25°

These values agree in general with those of the monocyclic terpenes. The material yielded neither terpinene nitrosite nor phellandrene nitrite. Ten cc. of oil were

treated according to Wallach's method [*Ann.*, 227, 281 (1885)] for the preparation of terpene tetrabromides. The resultant crystals were recrystallized from ethyl acetate. M. p. 100–01° C.

The nitrosochloride prepared in the usual way from 5 cc. of this fraction melted at 102° C.

The sodium-alcoholate residues obtained by purifying the terpene fraction were suspended in ether and treated with 5 Gm. of phthalic anhydride. A reaction took place after some time. However, it was not possible to isolate any definite compound.

Fractions 3 and 4, b. p. 100–114° were mixed and examined together. Being transition fractions, they were first subjected to the neutral sulfite assay treatment for pulegone. When the reaction became sluggish the oil was separated and fractionated.

Frac. 1, b. p. 25 −110°, vol. = 7.5 cc.
Frac. 2, 110− 18°, vol. = 15.0 cc.

In order to isolate any alcohols which might be present, these fractions were mixed with some phenyl-isocyanate (Kahlbaum). Fraction 1 deposited crystals after an hour's time. After standing two weeks, a slight odor of the reagent was still noticeable. However, the crystals were filtered out and the oil was subjected to steam distillation. The crystals were found to be diphenyl urea, m. p. over 230° C. The very viscous residue left from the distillation was dissolved in boiling 50 p. c. alcohol. An oil separated on cooling, but crystallized on standing. The mother liquor deposited during evaporation both an oil and crystals. The latter also proved to be diphenyl urea, m. p. 235° C. As diphenyl urea is not so very readily soluble even in strong alcohol, it seems certain that an unstable phenylurethane was formed and decomposed into the urea according to the well-known reaction.

$$2\,R{-}O{-}\overset{\overset{O}{\|}}{C}{-}NH{-}C_6H_5 \longrightarrow R{-}O{-}\overset{\overset{O}{\|}}{C}{-}O{-}R + (C_6H_5NH)_2CO$$

$$R{-}O{-}\overset{\overset{O}{\|}}{C}{-}OR + 2H_2O \longrightarrow H_2CO_3 + 2HOR$$

An odor reminding of geraniol accompanied the process.

Frac. 114–16°.—The oil boiling between 114–16° C. at 22 mm. pressure had physical properties in close agreement with those recorded for pulegone. The values previously given are repeated for ease of comparison with those found by Wallach.

d = 0.936; n = 1.4846; b. p. 221–22°
Observed, b. p. = 114–16°; d_{22} = 0.9332; n_{22} = 1.4845; α = + 22.85°

To confirm this evidence a portion was involved in reaction with semicarbazide. After the usual procedure, a crystalline semi-carbazone was obtained which was resolved into two fractions by repeated recrystallization The higher fraction (*a*) melted at 168–71° C. when obtained from 95 p. c. alcohol. The lower melting fraction (*b*) was also more soluble. It melted somewhat indefinitely, but a portion was finally obtained from 50 p. c. alcohol which fused rather sharply between 137–38° C.

A repetition of the above experiment with 56 grams of ketone fraction gave similar results. The final melting points in this series were a little higher, namely 172–73° C. and 138–40° C. respectively. The difference in crystal form was very noticeable. The higher melting compound was obtained in short rhomboid crystals, the lower melting in slender prismatic crystals.

As a further study of the behavior of fraction 114–16° C., a small quantity of oil was submitted to hydrolysis according to the method used by Wallach for the decomposition of pulegone. [*Ann.*, 289, 338 (1896).] (1) It was thought that any more stable compound present might be detected after the removal by this means of most of the pulegone.

Seventy cc. of oil were mixed with an equal volume of 85 p. c. formic acid and refluxed for 16 hours. The mixture was neutralized with KOH, the precipitated oil washed with water and then dried over sodium sulphate. About 45 cc. of oil were recovered. After two fractionations through a short Vigreux column, the following series resulted:

Frac.	B. p.	Vol.
1.	−165° C.	..
2.	165– 75°	24 cc.
3.	175– 95°	6 cc.
4.	195–215°	5 cc.
5.	215°+	..

Fraction 2 possessed the following physical properties:

$d_{21} = 0.909$; n = 1.4460; $\alpha = +12.5°$.

Wallach* observed for pure d-methyl-l cyclohexanone-3

$d_{21} = 0.915$; n = 1.4456; $[\alpha] = +13.38°$; b. p. = 169° C.

The semicarbozone prepared from this fraction melted at 180° C. after recrystallization from 50 p. c. alcohol; Wallach has recorded its m. p. at 180° C.

Accordingly *d*-methyl-*l* cyclohexanone-3 has resulted by the hydrolysis of fraction 114–16°. The second product of hydrolysis, acetone, was easily detected in fraction —165° C. by the preparation of its characteristic *p*-nitrophenylhydrazone, m. p. 148° C. Hence the two hydrolysis products derivable from *d*-pulegone have been obtained.

The high boiling fraction, 195–215° C. was converted into a semicarbazone m. p. 170–72° C. after recrystallization from hot 95 p. c. alcohol. This appears to be unchanged pulegone.

Fraction 116–20° was subjected to the neutral sulphite assay for pulegone. The entire fraction dissolved, hence it was composed essentially of the same material as the preceeding.

Summary.—*d*-Pulegone is the chief constituent of *Mentha canadensis* oil from Wyoming. It is accompanied by another ketone, as yet not positively identified yielding a semicarbazone melting at 138–40° C.

The lower boiling fractions contain chiefly *l*-limonene.

Evidence was obtained of the presence of an alcohol but it is not *l*-menthol.

* "Terpene end Campher." Ed. 2, p. 420.

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THE STATUS OF THE HOSPITAL PHARMACIST.*

BY EDWARD SWALLOW.

The profession of pharmacy, like all other callings in life, needs individual effort of no mean strength to bring success and honor in the exercise of its duties. Modern progress is such, both in science and business methods, that industry, generally, is no longer content with a portion of the individual, and to keep up with the times it behooves one to exert all his powers in the performance of his obligations.

Connected so closely with the art and science of healing as the profession of pharmacy is, when it comes to a final analysis we have to admit, willingly enough, that we are part of the great and glorious army of men and women enlisted in the battle against disease which humanity has to contend against. This knowledge and spirit it is which makes every pharmacist in the retail drug business "more than a merchant," more than a mere trader in medicines and other goods. In the compounding of medicines, the pharmacist not only exercises his skill and brings all his science into the work, but, also his desire to be of service in the cause of suffering fellow creatures. In this way he gives more than mere mechanical business service. He feels that his work means the ease of pain, the cure of disease, the adding to the happiness and bodily welfare of his fellow man. Down in the bottom of the heart of any worthwhile pharmacist lies this blessed truth "that in the exercise of his art he knows that he is engaged in a work governed by the fellowship of love and service of mutual aid and sympathy."

A knowledge of conditions in the retail end of pharmacy teaches us that there is considerable pure trading to be done nowadays by the pharmacist if he wants to succeed in a financial way. Things have evolved that way it seems naturally and it is only common sense to meet the conditions in the best manner possible by a proper amount of commercial training in addition to that of a highly trained pharmacist.

But the hospital pharmacist, future standard-bearer of his profession, representative solely of American pharmacy in its purely professional sense, is not called upon to exercise an up-to-date training in the art of selling for profit and func-

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tions as a professinal man in the exercise of his calling. He represents, or should represent, in his person all the science and knowledge obtainable from the colleges of science and pharmacy, and it would seem to anyone conversant with the education now demanded by these colleges that the hospital pharmacist is entitled to all the emoluments, dignity and respect that any other professional man gets from the public and those with whom he is brought into contact.

For the purposes of this paper the following points will be considered: (1) Where does the hospital pharmacist come from and why? (2) Does his training justify the honor and privileges being extended to him as a professional man? (3) Is the hospital pharmacist treated generally as a professional man? (4) Are the salaries paid for hospital pharmacy enough to encourage men of scientific attainments to take up this vitally important branch of pharmacy? (5) Seeing that the hospital pharmacist does represent professional pharmacy only in regard to his work, is the present condition of affairs in a great many hospitals, where persons unqualified to do so compound and dispense medicines for sick people, not only a reflection upon professional pharmacy but constitutes a menace to the public welfare and security?

(1) In regard to where the hospital pharmacist comes from the writer, after many years' experience as a hospital pharmacist, can safely assert that he comes into this work from the retail drug trade chiefly because the hours are, as a rule, shorter, the positions permanent and the work not so exhausting, physically. It may be stated in this connection that recent years there has not been a sufficient number of men who felt like giving up good paying positions in the retail to take up hospital pharmacy work. The city of New York has not for quite some time been able to fill up vacancies occurring in city hospitals from the civil service list as such positions call for.

(2) In regard to whether the previous training of the hospital pharmacist entitles him to the honor and recognition accorded other professional men engaged in hospital work, doctors, dentists, nurses, etc., is touching upon the delicate question of what his status was when engaged in retail pharmacy. Was he considered a professional man there and honored as such? In a few isolated cases in the retail trade we know there are men who are afforded the honors due to being highly trained professional pharmacists who function as such, but the majority of pharmacists are looked upon with much less respect than a banker or an architect obtains.

We know that, fortunately, there are a number of men and women of the highest pharmaceutical training and knowledge engaged in the work of hospital pharmacy and these are shining examples of the kind of pharmacists required in all hospitals throughout the country. According to recent statistics there are now 6,830 hospitals in the United States, which have a total capacity of 755,722 beds which are occupied on the average by 553,133 patients who are entitled to all the care and science possible from all engaged in hospital work. It probably is a fact that, as far as the medical attention is concerned, the science and knowledge is of the highest and most modern form in all these thousands of institutions for the care of the sick. Can we claim the same high honors for the profession of pharmacy? Does our profession function 100 per cent. perfect and thus keep pace with the medical profession in caring for these half million patients who lie sick and helpless in our hospitals? If it does not it is evident there must be something lacking

in the previous training of the majority of hospital pharmacists before they entered upon this important, most important, branch of pharmacy.

(3) Regarding the professional status of the hospital pharmacist in the hospital itself with a few exceptions of the able and really scientific men and women mentioned above, it is safe to assert that the hospital pharmacist gets no more recognition for being a professional man, as a hospital employee, than he did when engaged in the retail trade, from all concerned. Statistics show that of the 6,761 hospitals reporting as to who were superintendents or administrators 39 per cent. were physicians, 18 per cent. were registered nurses, and 41 per cent. were persons not having degrees of M.D. or R.N., nothing being mentioned of the existence of the hospital pharmacist. In this connection it is worth while mentioning that a close study of the medical journals for the past year of 1923 failed also to show the existence of the pharmacist. Nurses, dentists and others are named in connection with medical matters, but the pharmacist never!

Look over the journals devoted to hospital interests and you will find the same state of affairs, dietitians, nurses, and laundry men are very much in print but the pharmacist might as well be lying dead in the morgue all the time for all the publicity or recognition he gets. Here in these hospitals where registered pharmacists are representing purely professional pharmacy, in the great majority of cases, these men have no professional standing and honorable recognition, any more than ordinary employees. In Bellevue Hospital, for instance, only one registered pharmacist (the chief of the department) is allowed the privilege of dining with the professional help, and there are five registered pharmacists employed there, four of whom eat with the ambulance drivers, clerical force and other employees who cannot claim any professional privileges whatever.

This is mentioned to show the kind of standing the hospital pharmacist has in a large educational institution where there are hundreds of internes, visiting physicians constantly being brought into contact with him, the representative of the profession of pharmacy.

(4) In connection with the salaries paid to hospital pharmacists, we touch upon what is very probably a vital point in regard to the conditions generally, as far as our profession is concerned. When good men and women pharmacists can command $50 to $60 per week for their services in the retail drug trade, with the added opportunity of some day getting into business for themselves and providing for their old age, it is against reason to suppose these same able pharmacists will leave all of this and take up positions in hospitals where they will receive not much more than half they could earn in the retail store and have nothing but this kind of salary staring them in the face for the balance of their lives, or until the time comes when they are too old or sick to work any more. The hospital pharmacist has the same right and duty to himself, as any others, to be paid for his services so he can support himself (and family if he has one) in comfort and provide for his old age. Generally speaking the salaries paid to hospital pharmacists are totally inadequate for these necessary requirements for all engaged in earning a living. While it is not claimed that the small salaries only command the services of a very ordinary type of pharmacists, it is stated as a fact that these salaries keep very able men and women from entering this representative branch of the profession of

pharmacy and, consequently, the profession is not represented so as to bring the highest honors and recognition to our profession.

(5) Seeing that the hospital pharmacist represents professional pharmacy only in the character of his work the whole pharmaceutical body is interested in helping him function along the lines of progress and contentment in his work so he may reflect honor and dignity upon the profession as a profession. Where unregistered persons are allowed to perform the duties peculiar to the pharmacist, as is done in only too many small hospitals, each it is to be remembered having sick persons requiring the maximum amount of scientific care, the dignity and prestige of the whole profession of pharmacy suffers and the safety and welfare of our fellow citizens are distinctly menaced.

It is submitted that were every hospital required by law to employ registered pharmacists, always providing the proper kind of salaries were paid, there would not be enough good pharmacists left for stores; the badly conducted ones would pass out and those left, to quote from a recent letter of Dr. Robert J. Ruth, Chairman of this Section, "would be so busy doing a professional business that they would not find it necessary to highly commercialize their stores to make them pay."

ABSTRACT OF DISCUSSION.

H. J. Goeckel stated that the hospital pharmacists should have an association; the nurses, superintendents and others of the hospital organizations have. The dietitians have an association and are recognized in the American Hospital Conference and Association.

RETAIL SELLING.*

BY TURNER F. CURRENS.

In the last few years the term "Merchandize" has been broadened. To-day we hear that this or that thing "can be merchandized," or that "Smith is a good merchandizer" or "Brown does not know how to merchandise his store." There is a seeming desire on the part of some writers, or men interested in sales work, to throw an air of mystery over this merchandizing thing. Merchandizing is simply a present-day term for aggressive, intelligent selling. A live-wire druggist can merchandize his Prescription Department just as he can his candy counter or soda fountain, by playing up quality, care and accuracy; by impressing customers so that they believe prescriptions filled at Jones' are more likely to be right than if filled at Brown's. The druggist who so merchandizes his Prescription Department that people have this faith, reaps his reward in many ways.

However, many successful druggists to-day pay secondary heed to the prescription business, looking upon it as a necessary evil. In such stores, Retail Selling is generally given a greater study, with comparatively greater success. But aggressive merchandizing, or aggressive intelligent selling when applied to a prescription department, or any other department, in a store, always yields results in the way of increased sales and resultant profits. No matter what the nature of the store, retail selling is always more successful where the proprietor or manager has some idea of the direction in which he is heading.

To merely open up an attractive, well-appointed store, properly clerked, and

* Section on Commercial Interests, A. Ph. A., Buffalo meeting, 1924.

then wait for sales to be made, is one way to failure or, at best, to very mediocre success. A carefully planned Sales Policy backed by a definite selling program, built upon a study of the store's environment, cannot fail.

Sometimes a clerk with a downtown experience of quick service sales, and quick turnover, can take these methods into a residential section, or small town, and succeed. On the other hand, it is doubtful if a small town or neighborhood druggist would succeed if he tried to use his methods in a store dealing with transient trade, or a trade that wants what it wants, and wants it quick. It is generally best to plan to give a sectional patronage what it wants, rather than go contrary to its wishes. So after you know what your people want, your selling policy becomes easier to plan.

Stores enjoying the patronage of children should plan children's sales for Saturdays rather than on school days. In industrial or railroad centers, the best time to plan a sales day is on Pay Day. In country towns Saturday has always been a big merchandizing day, but now that most farmers own autos, Saturday has somewhat lost its punch, so we find evening sales advertised in papers enjoying local and country circulation.

Too many dealers have forgotten the logic of the old saying, "It's no trouble to show goods." Not that they do not have plenty of merchandise on display, but when the called-for item is ready for wrapping, right then should salesmanship enter and some item "shown," described, explained, and sold—and, if the proprietor or manager has planned ahead what to sell, nine times out of ten that sale will be made.

The Owl Drug Company dramatize this idea by planning and staging "The Second Item" on certain days or weeks; every clerk is taught all about the Second Item, and instructed to put his sales ability behind that one article. Results are enormous because any intelligent salesman can sell whatever he concentrates on.

An Advertising Agency does some mighty good work for retailers who subscribe for their service. Many proprietors do not have time to plan store cards or store displays, and wisely take advantage of this service and, even where the proprietor or manager does have the time and ability, he can profit by taking suggestions from specialists. The same thing applies to window dressing. Many clerks are good window dressers; many are not, so that window dressing services are often well worth their cost. Window and Inside Displays and Cards should all be planned and made to line up with a pre-studied Sales Policy.

Publications are doing very good work for the drug trade at large. Through the medium of Display Topics, dealers all over the country, cities and small towns, are taking advantage of this coöperation.

It is said that 75% of drug store merchandise is sold by clerks, and yet I believe nearly all clerks selling this merchandise are working on flat salaries, with no incentive to do more than an ordinary job of selling. Plan equable salaries for clerks, and then give extra commissions for the sale of extra-profitable items, and watch the result. Every human being likes money, and drug-store employees are no different. Plan carefully what should be sold; study the seasons; study current events. Know which are the long profit items which sell readily, and the occasional sellers. Plan occasional quick turnover sales on a narrow profit margin, cross-fire sales—like a baseball pitcher crosses his pitching.

An inventory is often looked upon as a troublesome thing which must be done once a year, but every inventory is really a valuable instrument in successful retail selling and can be used to excellent advantage, if carefully studied. An inventory should be carefully extended, and profitable, quick-selling items indicated with a plus check; the slow-selling, unprofitable items indicated by a minus check; and merchandise in the store arranged so that the profitable, moving items are prominent, and the slow goods otherwise. Clerks and sales people should be taken into the dealer's confidence so they know what he is planning. And to repeat, make it interesting for them.

The up-to-date retailer knows his competitor, and knows what he is doing. The "old fogy" refuses to "get acquainted with that competitor down the street." If competitors would meet on common ground they would find all to be about the average kind of fellows, honest, of clean ideals, and generally willing to meet halfway. It does not take neighborhoods long to take advantage of retailers' petty enmities. In our efforts to get druggists to take their rightful profits, we are generally successful in getting druggists to bring their price up by calling back and forth in certain districts, and in this work we repeatedly find dealers being buncoed by their customers. A woman will ask Brown the price of an item, and on being told it is 45 cents will say "I can get it at Smith's for 40." Time after time we see Brown fall for the deception, and sometimes go Smith one better. If Brown and Smith were friendly they would "stand pat."

We often hear of elderly maiden ladies telling mothers how to bring up their children, and such advice is taken generally as theory or "busy-ness." While I am not a retailer, what I have said here is not theory. I have endeavored to present a few simple observations which, if followed out, should pay in real cash. Oftentimes, looking from the outside in you can see more clearly than when your vision is dulled by a too close observance of your own little business, and its problems.

I'd like to close with a strong plea to you who are retail dealers. Put your clerks on an equable salary, plus extra commissions on certain items you desire pushed. Get acquainted with your competitor. Get out and see what is going on about you. Join every national pharmaceutical organization, as well as state, county and local; if there is no local organization, organize one even if it is made up of only one or two competitors and yourself.

PLAIN FOOLISHNESS IS CREDULITY'S TRUE BADGE.

BY EDWARD SWALLOW.

"O, what men dare do! what men may do! what men daily do! not knowing what they do!" Shakespeare, had he been alive in these days when we are flying through the air, listening in to radio discourses, operas, sermons, advertisements broadcasted hundreds of miles away; when we are counting atoms just like so many peas in a pod; when we buy our music by the yard or mile, according to the length of our pocket-books, and sit around hearing a nice-looking machine produce the masterpieces of artists who earn money by the wagon-load for singing a few songs; in these wonder-working times William Shakespeare would still

have written the above lines as human nature is still of the same brand as he knew it in his day.

Pharmacists in business sometimes wonder where all the prescription trade has gone to. Are the chain stores getting it? The fellow (brother pharmacist) on the next corner? No! Well! Where the Samuel Hill HAS it gone to? Echo answers, Where?

My friends of the once beloved pestle and mortar, have you ever considered the gentle Chiropractor, the Natureopath, the Mind-healer, the Science Healer, and a large number of other brands of healers who "cure" every kind of disease known to humanity, always providing humanity can pay for it? Hundreds of thousands of persons take this "cure" or that "cure" daily, some twice a day, but the process does not help the drug trade so you can notice it, because, these different "cures" have no more use for drugs and medicines than Volstead has for a Manhattan cocktail. It's sad but true nevertheless, that the more these cults and 'isms and medicineless healers prosper, the more the average druggist will be looking for something to sell to take the place of those prescriptions which the regular medicine man would have written had he had the chance. While we are not foolish enough to believe the honest-to-goodness doctor cures every time, we do know that it is pretty good business for us in any case. We stand to win, cure or otherwise, that being about the only real privilege attached to retail pharmacy nowadays from the strictly professional standpoint. But with these new-thought-chiropractor-mind-healing-'isms and cults we don't get a look at an honest dollar from a patient. They take good care of that. To illustrate: We know a family who are so fed up with all these new fangdangled "cures" that we can safely assert they would rather die than even buy a 2-cent stamp at a drug store; the smell of the alarm clocks, walking dolls, candy, and "other goods" would give them a fractured skull or dandruff of the scalp from over-excitement. The father of this drugless family is a follower of chiropractic, his wife believes in osteopathy, and the three grown-up children, being brought up in this atmosphere, have naturally come to pin their faith upon "mind-healers." A few weeks ago the whole family went down with influenza and the father, after being "adjusted" by his pet chiro', insisted upon all his family undergoing adjustment. As the chiro' charged separately for each patient the osteo' and mind-healer called in by the rest of the family kicked like mules because they had to charge up their fees. They explained that the new ways of curing were so sure that they never gave credit to any one. Also seeing that no medicines were required in their treatments patients were expected to pay cash.

Verily "those who know least imagine most," dare most, and in connection with these "cure for cash" near-professors of the art of healing, *Charge the Most!*

Now it is easy to see how this kind of foolishness affects the law-ridden-beauty-parloured-chainstored-cutpriced-Volstead-bossed modern profession of pharmacy which is forced, by the stern necessity in the matter of survival, to run their stores along department store lines and allow these latter to say at what prices they shall sell the very goods introduced in all innocence by the most ancient and noble members who went to college for the sole purpose of getting an expensive tail attached to their names in the shape of a Ph.G. These same operations showing "what men may do!" and "what men daily do!" but, we cannot say "not knowing what they do!" as the colleges are still overflowing with students who "hope

for the best" and, in the main, are preparing *to do their best* under all circumstances. Far better is it to have learnt, and lost! than never to have learnt at all!

It is humbly suggested to all pharmacists, old, young, employers or employees, ethical or unethical, that these numerous drugless cults, 'isms, and, in fact every pretension to the art of curing disease by unscientific methods based purely upon ideas of the quickest way to relieve suffering humanity, not of its ills, but of its hard-earned cash, all this kind of thing affects the prosperity of the retail drug trade as much as it does the regular medical profession. This latter has awakened to the fact that the business end of *their* profession (which is not a charitable institution, naturally enough) is seriously affected by the immense amount of business, pure and simple, being done with those who are foolish enough to trust their lives and health in the grasping hands of any kind of pretender or unscientific faddist that can afford to advertise, knowing well that "what men dare to do!" in the way of exploiting human folly and ignorance still brings much profit—seeing that even in these days there seems to be, more than ever before, a greater number of persons who will, when sick, part with their money "not knowing what they do!"

Going below the surface of the mere money-making part of our calling we know now if never before that medicine has at last become a definite science. The boys and girls nowadays are learning in the colleges of pharmacy scientific facts for the purpose of applying the same in the cure of disease and keeping up with the progress made in medicine by the medical profession at large. Anything that affects the reputation and prosperity of the medical profession must of necessity affect the profession of pharmacy in the same relation. When the regular doctor stops functioning as such, he writes no prescriptions and the pharmacist is at once also brought to a stand-still. One only needs to read the medical journals of this country to understand how much these irregular methods of healing, well advertised as they are, have alarmed the whole medical fraternity, not only in connection with their material prosperity, but in regard to the public welfare and health which suffer by reason of so many persons being foolish and ignorant enough to turn true science to gross falsehood and unscientific methods of healing.

This article is not written merely for the sake of "word painting" or "wind jamming," but in the earnest desire to suggest to the whole profession of pharmacy in America the advisability, the necessity, the wisdom, of lining up with the medical profession in its fight against unscientific forms of healing generally, and showing by every help possible their confidence in the one particular science which makes the profession a reality. If we believe in a thing, study it scientifically from all angles, have confidence in its benefits to our fellow men, gain a livelihood by its practice, surely we should on every occasion back it up with all our force and strength when its integrity, its honesty of purpose or its efficiency is imperilled and the whole science of medicine advertised to the world by more or less mercenary persons as worthless, out-of-date and useless.

Just the same as the timbers of a wooden bridge were once part of a forest, so is the profession of pharmacy part and parcel of the profession of medicine. We have to defend that bridge with intelligence and vigor! For our own sake, and that truth may prevail!

COMBINED PHARMACY AND CLINICAL AND PATHOLOGICAL LABORATORY SCIENCE EDUCATION.*

BY HENRY J. GOECKEL.†

Many attempts are being made by our universities to give courses combining arts and science degrees with the courses leading to the degree of Doctor in Medicine. Most of these courses have a cultural aim rather than any idea to prepare the recipient to be extensively qualified in some branch of the arts or the sciences in a manner to coördinate with the major degree.

At the last meeting of the American Conference of Pharmaceutical Faculties a paper was presented describing a combined curriculum in pharmacy and medicine[1] as given at the University of Michigan. This is the only combination course excepting the D.P.H. (Doctor in Public Health) that the writer knows of, with a frankly utilitarian aim to coördinate knowledge in two inter-related branches of medical endeavor.

The various courses offered at this university are briefly:

(1) For the M.D. degree. Two years' arts, four years' medicine. (2) For a B.S. in medicine and the M.D. degree: Two and a half years in literature, arts and science and four years' medicine. (3) For an A.B. and the M.D. degree: Three years' arts and four years' medicine. (4) For an A.B. or B.S. and the M.D. degree: Four years' arts or science and four years' medicine. (5) For a B.S. in pharmacy and the M.D. degree: Three years' pharmacy and four years' medicine.

Theoretically these are all very nice but stern economic and sociologic factors seem to be definitely pointing to the need of a careful re-evaluation of our educational methods as applied to those members of the community who are to alleviate suffering and, as far as it is possible to do so, to prevent and cure the ills of human kind.

Many of our foremost medical educators admit that much of our educational energy at present forced into the channels of medical education is wasted energy as related to at least ninety-five per cent. of the medical students. Cushing[2] of Harvard University in an address to the 1924 Congress of Medical Education, Medical Licensure, Public Health and Hospitals, states—"In our pursuit of the medical sciences we have lost touch with the art of medical practice, and all the anatomy and physiology and pharmacology in the world is not going to guard a young doctor against making an unnecessary number of diagnostic mistakes and subsequent errors of treatment unless he has been brought face to face with clinical problems and learned sound methods of treatment for an ample time. When he has been thinking in terms of the patient for only two years instead of four, there are so many countless minor conditions—they cannot possibly be mentioned far less shown and demonstrated to every student in the short time at one's disposal. There is much in short, that was taught, and is still taught to-day to students in their

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* Section on Education and Legislation, A. Ph. A., Buffalo meeting, 1924.

† Consulting Pathologist, Somerset Hospital, Somerville, N. J.

[1] Edward H. Kraus, JOUR. A. PH. A., 13, p. 353 (April, 1924).

[2] Harvey Cushing, M.D., "The Clinical Teacher and the Medical Curriculum," *Jour. A. M. A.*, 82, p. 843, (March, 1924).

pre-clinic courses, that is unnecessary and could well enough be omitted, or at least left for their graduate years of study."

The President-Elect[1] of the American Medical Association at the 1924 Convention in his address advocates a shortened course of medical education. He dwells on the economic factors of high cost of medical training in dollars as well as the sociologic factor of years. He also raises the very pertinent question of retaining the degree of Doctor in Medicine to signify one capable of living up to the sociologic significance of that degree.

No real study has, to the writer's knowledge, ever been made to give an explanation of why much of the pre-clinic course of education is apparently wasted energy. I believe if such a study was made, we would find that part of the trouble is taking a class of men and women of a certain temperamental and mental type which leads them to choose the medical vocation and trying to impose upon them a curriculum which is foreign to their aims and capacities. The result is, as many leaders frankly admit, of rather doubtful value.

No mention is made by either of the speakers quoted of the fact that a curriculum crowded with subjects uninteresting to the student is a vicious education as it has all the evils of a quiz cram, parrot memorizing system. It does not develop a power to observe accurately nor to reason in a logical manner. In fact it seems to deprive the young doctor of much of the self-confidence which he should have after six years of college training.

If the advocated changes in methods toward shorter pre-clinic courses should find extensive favor, it would be very unfortunate if no other provision was made to provide adequately for the preservation and extension of the fundamental so-called pre-clinic subjects to preserve their special utilitarian value to society. This is where the pharmacy faculties in universities with general science, pharmacy and medical faculties should take the initiative.

All the courses with the exception of the combined pharmacy and medical education, have a very questionable utilitarian value. It is a question whether the increased time required for the long preparatory period in any way compensates society for the increasing costs for medical service. It is even questionable whether the combined pharmacy and medical courses as outlined by the University of Michigan will accomplish what its advocates aim at. It is more liable to produce a class of physicians which we have fortunately been losing in late years, namely such that place complete reliance on drugs to effect cures to the neglect of common sense hygiene and the various physical and mechanical aids. To return to such a state of affairs will but accentuate the problem of cults by furnishing them with an apparent justification. It will also work an injury to pharmacy and to the use of drugs.

The necessary shortening of the pre-clinic courses will be a detriment to the laboratory branches of service. It is here where the pharmacy faculties have an opportunity to render real service by bringing about a combination of the regular pharmacy education with those of the medical schools to produce qualified laboratory experts.

As a rule the class of students who enter a first-class pharmacy school for

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[1] William Allen Pusey, M.D., *Jour. A. M. A.*, 82, p. 1960 (June 14, 1924).

the extended courses are of a temperamental and mental type which makes for success in the tedious work which characterizes most laboratory activities. Likewise the grilling chemistry and related courses as given in the pharmacy schools are more directly applicable to prepare for this type of work than are either the very limited courses given to prepare medical students, or the general courses given in the department of chemistry of many universities.

The experimental physics courses in many university departments of physics are possibly more extensive and satisfactory than those given in the pharmacy department. The general biology course of the university and the experimental pharmacology of the medical department should be a part of the curriculum. None of the pharmacy curriculum should be omitted as it is this which will develop a well-grounded knowledge of laboratory technic.

The bacteriology in many advance courses at colleges of pharmacy will, in general, be superior to those in the department of medicine as they are not as a rule confined to the pathogenic organisms, thereby giving a more extended view of the subject.

The anatomy and dissection courses at the medical school should be a compulsory part of the combination, as should also the normal and the pathological histology, embryology and neurology. However, the time given to these should be much greater than is required of the general medical student. In the writer's experience the courses in normal and in pathological histology were excellent but those in embryology and neurology were entirely inadequate to prepare for a laboratory career.

The physiological chemistry will probably be better in the pharmacy school while clinical pathology and serology will probably be best at the medical school.

This is a combination which those universities requiring six years for the Doctor in Pharmacy should consider. Whether the degrees should be Bachelor of Science in Medicine and Doctor in Pharmacy, or something else, is a subject for the universities to decide. However, it is the opinion of the writer that the degree of Doctor of Medicine should, as far as possible, be restricted to those who are actually qualified to make thorough physical diagnosis and to practice therapeusis. It should not be given for any other purpose as it is liable to lead to confusion. This will tend to prevent the laboratory branches of our hospitals being used as a makeshift by poorly qualified physicians until the opportunity presents itself for them to enter general practice. This, at present, is one of the banes of the laboratory service, as comparatively few medical men take up the service with the serious intention of making it their life's work. The result is that they usually employ it as a stepping stone and never thoroughly qualify or devote their attention to the work.

SUMMARY.

1. The suggested combined pharmacy and clinical laboratory science curriculum is one in which the subjects supplement and fortify each other, leading to a well-rounded understanding of the limitations of the laboratory service both from the technical view and from the medical view.

2. It will produce a group which has an understanding of the pharmaceutical, chemical, physical and clinical laboratory technic, better than is possessed by the medical profession.

3. The group will also possess a better understanding of the limitations of pharmacy, and of therapeutic requirements and principles, than do the present pharmacists.

4. They will by these qualifications contribute to greater progress in rational therapeusis than is at present obtainable.

5. It will afford a possible means of better coördinating pharmacy, the laboratory service and medical practice, thereby improving all three.

6. It will furnish a more satisfactory group of pharmaceutical chemists for teaching and for manufacturing and biological positions.

7. It will place the laboratory service in a distinct class where it will not be subjected to abuse by being utilized as a mere stepping stone to medical practice.

8. It will improve laboratory service by stabilizing it.

9. It will afford better means of establishing efficient hospital service than is at present possible.

CORRESPONDENCE

PHARMACEUTICAL MUSEUMS AND LIBRARIES.

The Editor: In connection with your excellent Editorial Note "The Proposed Museum and Library of the A. Ph. A. Headquarters" on pp. 1175 and 1176, December, 1924, permit me to point out that there is an excellent opportunity to study the pharmaceutical museums and pharmaceutical libraries in Germany, Austria and Switzerland in connection with the American Pharmacists' European Tour during July, August and September of this year.

These countries are noted for their rich pharmaceutical collections dating back many centuries, and from these much may be learned and gathered which can be utilized to good advantage in the "Home of American Pharmacy." The writer, together with his family, will take active part in this European tour. As one having special interest in Historical Pharmacy, I have taken it upon myself to prepare an outline of the most important pharmaceutical museums and libraries in Germany, Austria and Switzerland. These will be visited, studied and described during the tour and especially after the party disbands in Cologne on August 18th. As the time arranged according to the arranged itinerary is necessarily somewhat limited, many of these places will have to be visited afterwards. Such visits will give a mint of information for papers on this subject.

Pharmacists taking an interest in this matter will kindly get in touch with the writer. At any rate, it will be well to take sufficient time for this trip and not return until about the end of September, f. i. leave Hamburg on September 11th by the same S. S. Cleveland. This would also have the advantage of securing the same accommodations both ways.

Yours for deeper pharmaceutical study,

Brooklyn, January 1, 1925. OTTO RAUBENHEIMER.

SERVICE OF GOVERNMENT BUREAUS.

The U. S. Public Health Service Exhibit at the N. A. R. D. Drug Show was in charge of Dr. A. G. DuMez and Miss Frances Stevens. Drug standardization was the feature of the exhibit, illustrated by charts and bulletins, apparatus, test solutions, indicators, etc.

The Bureau of Standards exhibited weights and measures, measuring instruments, optical glass; the method of testing clinical thermometers was demonstrated.

The annual report of the Bureau of Plant Industry discusses among many other subjects, concentrated fertilizers, flowers for insect powder, menthol, cedar oil from waste, American saffron, tung oil and chaulmoogra oil.

THE DEPARTMENT OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES

("The members of the teaching profession and all interested in pharmaceutical education recognize that Dean Wulling of the University of Minnesota stands in the foreground of the movement for better pharmaceutical training, therefore you will read with pleasure his article appearing in the Conference Section of this number of the JOURNAL."—C. B. JORDAN, Editor.)

CHARACTER TESTS FOR ENTRANTS UPON PHARMACY.

BY FREDERICK J. WULLING.

The recent disclosures of the increased activity of the diploma mills is only an additional evidence that there are too many unscrupulous persons in pharmacy. There may not be more proportionately than in other professions or callings but, however that may be, there are too many for pharmacy and we must think not only of a present remedy but also of prevention in favor of the future.

The majority of right-thinking pharmacists have been agreed for some time that pharmacy needs higher standards of education, practice and conduct, and fairly effective steps have been taken toward securing for the public a reasonably safe though by no means ideal pharmaceutical service. *As yet there are no expressed or defined standards of character.* Of course as educational standards have been increased, it is fair to imply that moral and character standards have increased because, everything else being equal, it is undisputed that education brings a degree of culture and refinement that tends toward character improvement and therefore towards improvement in conduct. If pharmaceutical educational standards were much higher, pharmacy would no doubt be much better off culturally and morally. While ascending educational requirements increase the recognition of moral responsibilities in an accelerating degree, it is probably true that no degree of education can be required or attained which will absolutely insure moral and character perfection. It is the business and the duty of pharmacists collectively to do everything possible toward the realization of a greater degree of progress toward that perfection. There are certain temptations, inherent in the practice of pharmacy, to overcome which a strong moral character is required. As every one knows, these temptations have recently been increased very greatly and have brought many unscrupulous and parasitic persons into the calling. That is, the new temptations appeal directly to the less morally developed minds and these bring disrepute to a calling made up normally of ethical minds capable of withstanding the temptations. Something in addition to our educational requirements should be exacted of entrants to pharmacy, to insure the future against the degrading influence of the morally oblique. We all ought to put our minds to work upon the question what additional requirements should be fixed. While I have not thought the matter out fully, it seems to me that it would be reasonable and effective to fix a *character standard* for those seeking admission to the ranks. It ought not to be difficult to agree upon such a standard. A start already has been made by the American Conference of Pharmaceutical Faculties at the suggestion of its 1923 President, Dean LaWall, in recommending to its members the requirement on part of new students of a pledge to faithfully observe and be governed by the Code of

Ethics of the American Pharmaceutical Association. This and other codes of ethics have been more or less dormant in the past. They should now be ventilated, observed and enforced. The A. Ph. A. Code has been adopted by a number of state pharmaceutical associations and colleges of pharmacy. The College of Pharmacy of the University will soon definitely require signatures to the Code for collegiate status if the University authorities approve. It has required for many years attendance upon a course in Law and Ethics. Possibly the boards of pharmacy will find it within their powers and duties to require similar subscription to the A. Ph. A. or an equivalent code.

Personally I am opposed to too many restrictions and laws but it seems that our civilization is becoming so complex and standards are so generally ignored or weakened that more and more restrictions and compulsions appear to become necessary to prevent a relapse into a dark-age period. I believe we can avoid that by starting at once, by reasonable methods, a moral and ethical renaissance.

THE UNIVERSITY OF MINNESOTA.
JANUARY, 1925.

CITIZENSHIP LECTURES AT THE MEDICAL COLLEGE OF VIRGINIA SCHOOL OF PHARMACY.

The School of Pharmacy of the Medical College of Virginia has arranged a course of lectures, to be given to all the students in the school, on the general subject of "Citizenship." We have been able to enlist as speakers in this course some of the most prominent citizens in the state.

Dr. John Garland Pollard, formerly Attorney General and now Dean of the Marshall-Wythe School of Citizenship at William and Mary College; Dr. S. C. Mitchell, formerly President of the University of South Carolina and Delaware College, now Head of the Department of History and Political Science at the University of Richmond; Dr. W. T. Sanger, Secretary of the State Board of Education, and others of like outstanding ability, have accepted the invitation to give one or more of these talks. The course was opened late in November and will continue at intervals through the session. Each speaker is asked to present some special phase of the general subject so that the course as a whole will cover the pharmacist's relationship to his community and the State—as a voter, as a member of civic organizations, as a participant in educational affairs; the final lecture is to be on "Christian Citizenship."

If this experiment works out as we hope and believe it will, it will be a distinct step toward getting the young pharmacists to realize, early in their career, that in order to be of the maximum service and to be successful in a large way, their point of view must embrace all of those major activities which go to make him a real citizen.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Council."—Part of Chapter VI, Article VI of the By-Laws.

Article IV of Chapter VII reads: "Each local branch having not less than 50 dues-paid members of the Association, holding not less than six meetings annually with an attendance of not less than 9 members at each meeting, and the proceedings of which shall have been submitted to the JOURNAL for publication, may elect one representative to the House of Delegates."

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

BALTIMORE.

The November meeting of the Baltimore Branch of the American Pharmaceutical Association was held at the Hotel Emerson on Tuesday, November 25, 1924, at 8:15 P.M., John C. Krantz, Jr. presiding.

The address of the evening was made by Dr. E. C. White, Associate in Urology in Johns Hopkins Medical School, and Research Chemist for Hynson, Westcott & Dunning, his subject being "Organic Mercurials."

Dr. White pointed out the distinction between salts of mercury and the organic mercurials, and emphasized the chemical properties of the latter that make them suitable for therapeutic studies. The historical development of organic mercurials was briefly sketched. The development of experiments leading to the production of mercurochrome and related mercurated dyes was described, and the use of mercurochrome locally and intravenously in the treatment of various infections was discussed. It was pointed out that animal experiments on the intravenous injection of this drug afforded a rational basis for its use in certain special types of infection in humans.

Certain other organic mercurials, especially those derived from nitro-phenols, were described, and their biological properties were commented upon.

Quite an interesting discussion, which was participated in by Dr. M. S. Kahrasch, William J. Lowry, Jr. and Miss Jennie Kroopnick, followed the lecture of Dr. White.

The next meeting of the Branch will be held on Dec. 17th, 1924. Dr. R. A. Baker, formerly of the University of Syracuse, will speak on the subject: "The Chemical Importance of the Metals."

B. OLIVE COLE, *Secretary-Treasurer.*

CHICAGO.

The Chicago Branch of the American Pharmaceutical Association held its 145th regular meeting in conjunction with other pharmaceutical organizations of Chicago and Illinois to honor Dr. James H. Beal and to promote the campaign for the Pharmacy Headquarters Building. Samuel C. Henry was chairman of the Committee on Arrangements for this meeting, serving for the following organizations: Illinois Pharmaceutical Association, Chicago Retail Druggists' Association, Chicago Drug Club, Chicago Veteran Druggists' Association, Women's Organization of the C. R. D. A., and the Chicago Branch, A. Ph. A.

Much to the regret of Dr. Beal and his host of Chicago friends the guest of honor could not be present on account of the condition of his health, Dr. Beal's physicians having insisted that he must avoid fatigue and excitement.

An excellent dinner was served to about one hundred at the Hamilton Club; the music was furnished by the Chicago Branch Orchestra, of five members.

Samuel L. Antonow, Illinois State Chairman for the Headquarters Building Campaign, presided. General Secretary William B. Philip was called upon to introduce the subject of the evening, from the historical standpoint; his able presentation brought the audience into close touch with this great project and prepared the way for the splendid address of Publicity Director E. L. Newcomb. The speaker was among the first to actively advocate an A. Ph. A. headquarters building and heartily endorses the plan for a building that will house all national pharmaceutical organizations and urged his audience to whole heartedly work for the location of the building in Chicago. He stated that the location would

be decided by popular vote and that votes could be had by obtaining subscriptions for the Headquarters' Building fund. He discussed some of the great problems of Pharmacy which can only be solved by united counsel and action of all drug interests. He referred to the importance of publicity for pharmacy—the encouragement of the favorable and the suppression of the false and harmful. Among other subjects included by the speaker as important and requiring coördinated coöperative effort were: Pharmaceutical legislation; science of business, with reference to the large sums of money necessary for carrying on investigations; revision of the materia medica in the light of clinical experience—popular use and new discoveries.

Among other speakers, all of whom endorsed and promised support to the project, were the following: Henry C. Christensen, Secretary N. A. B. P.; Harold N. Bruun, Vice-President of C. R. D. A.; Dr. A. S. Burdick of the Abbott Laboratories; Mrs. J. A. Topf, President of W. O. C. R. D. A.; J. F. Gutherie, President of the Ill. Pharmaceutical Travelers' Association; L. E. Warren, President Chicago Branch, A. Ph. A.; Lieut. Albert Albrecht, pharmacist in the Marine Corps; A. L. Liljestrom, I. A. Becker, F. J. Buck, P. J. Kolb and many others.

The following resolutions were offered and unanimously adopted:

WHEREAS a campaign has been initiated by the American Pharmaceutical Association for the collection of a fund to erect a suitable headquarters building to serve all pharmaceutical interests, and

WHEREAS, we, representatives of the C. R. D. A., I. Ph. A., Chicago Drug Club, C. V. D. A., Chicago Chapter W. O. C. R. D. A., Chicago Branch, A. Ph. A., recognize the real need for correlating the activities of the different branches of the drug industry in order that the big problems of American pharmacy may be solved, and

WHEREAS, we are convinced that such a pharmacy headquarters building should be centrally located geographically and in a city where many other similar institutions are already established, and

WHEREAS, we know that Chicago meets the fore-mentioned requirements and possesses unexcelled advantages for such an American pharmacy building, and

WHEREAS, the location of this building is to be determined by a popular vote and all who contribute twenty-five dollars or more, payment of which can be made over a period of years, are entitled to membership in the American Pharmaceutical Association with vote,

Therefore, we wholeheartedly endorse this project and urge the members of our respective organizations, as well as all drug interests, to contribute and give their active support to the end that the campaign be completed and the building be located in the City of Chicago.

DECEMBER.

The 146th meeting of the Chicago Branch of the American Pharmaceutical Association was held December 12, at the University of Illinois College of Pharmacy. A reception was given to new members and a delightful social evening was enjoyed by all in attendance, instead of the usual scientific program. One hundred or more were in attendance at the supper which preceded the evening's program; it follows:

Music	School Orchestra
Reading	Alice Haller
Piano Solo	Ruth Hordlicka
Reading	Josephine Bauml
Music	School Orchestra

ONE ACT PLAY.

"SIX CUPS OF CHOCOLATE."

Characters:

Adeline von Lindau, a German girl, Josephine Bauml.

Marion Lee, a Transplanted Southern Girl, Madge Walborn.

Dorothy Green, a New Englander, Estelle Warczak.

Hestor Beacon, a Bostonian, Barbara Hynes.

Beatrix van Kortlandt, a New Yorker, Catherine Curran.

Jeannette Durand, a French Girl, Evelyn Caron.

E. N. GATHERCOAL, *Secretary.*

CINCINNATI.

A conference of leading pharmacists was held at the Hotel Gibson, November 19, to discuss the professional side of pharmacy and to take steps to promote the interest of the pharmacist and the physician in this phase of pharmacy. President Charles Ehlers, of the Ohio State Board of Pharmacy, presented an invitation from The Ohio Valley Druggists' Association to the Cincinnati Branch of the American Pharmaceutical Association to hold joint meetings of the two bodies on the second Tuesday

afternoon of each month. The invitation was accepted, and a committee on program was appointed, consisting of Messrs. Ehlers, Jennie, Voss, and Brittain, to prepare a program for the next meeting, which is to be held the second Tuesday in December at the offices of the Ohio Valley Druggists' Association. Mr. Ehlers suggested as a topic for discussion the proposed change in the college curriculum of the schools of pharmacy from a two-year to a three-year course. This matter will come up at the next session of the Legislature, and the pharmacists are urged to come forward and express their opinions on the matter.

Among those who took part in the discussion were Milton Franken, J. Jennie, Ed. Joss, Jr., Joseph Schneider, W. Brittain, E. H. Thiesing, Dennis Murphy, F. H. Galle, and H. G. Schmuelling. The meeting was presided over by President Caswell A. Mayo, of the local branch of the American Pharmaceutical Association. Among those present, besides those named above, were Fred Fruechtemeyer, A. J. Curtis, H. E. Igler, Theodore Mueller, and Oscar Reifschneider.

NEW YORK.

The December, 1924, meeting of the New York Branch of the American Pharmaceutical Association was called to order in the Lecture Hall of the New York College of Pharmacy Bldg., Monday the 8th, with President Smith in the chair.

The minutes of the preceding meeting were read and approved. Twenty-five members and friends were present.

Treasurer's Report: Treasurer Gerstner brought in a written report which was ordered filed.

Fraternal Relations: Chairman Lehman reported that he had been doing much indirect work, through attending many meetings of other organizations.

Membership Committee: The following applications were received for membership: *Parent Organization*, Julius O. E. Neven, 1080 Cypress Ave., Brooklyn, N. Y. *N. Y. Local Branch*, Leo Reich, 780 Union Ave., New York, N. Y.

Audit Committee: Dr. Diner reported that all bills before him were passed on.

Discussion now arose relative to the reorganization of the New York Pharmaceutical Conference. It was moved, seconded and carried that our delegates be empowered to act for us and to report at the next meeting on this matter.

Communications: A letter of resignation from Mr. Frank L. McCartney was received. It was moved, seconded and carried that this resignation be accepted with regret.

Professor H. V. Arny reported on the death of Mr. Mc Elhenie. It was moved, seconded and carried that a committee be appointed to draw up suitable resolutions. President Smith announced this committee to consist of Messrs. Arny, Lehman and Schaefer.

President Smith also announced the Committee on Nominations to report at the next meeting and to consist of Messrs. Lehman, Mayer and Wimmer.

SCIENTIFIC SECTION.

Dr. Diekman now presented abstracts on the following:

Tests for Medicinal Carbon Tetrachloride
Esterification of Chaulmoogra oil
Variations in Acet-tannin
Differences in properties of Theobromine, Theophyllin and Caffeine
Preparation of Magnesium Acetyl Salicylate
Color reaction of Luminal
Antipyrine with Trichlor-acetic acid
Manufacture of a hydrated Bismuth Hydroxide

New preparations:

Geox-Sana—Phenosalyt.
Gelatin for injections—Alinol
Brucine, Optalgin No. 1, Optalgin No. 2.

President Smith announced the presence of President Holton of the A. Ph. A., who made a brief address, dwelling particularly upon the A. Ph. A. Headquarters Fund drive.

Prof. C. P. Wimmer, speaker of the evening, was now introduced and delivered a most interesting talk on "The Onward March of Science—A Review of Modern Researches and Inventions."

A short discussion followed in which Drs. Arny, Diner and Schaefer participated.

HUGO H. SCHAEFER, *Secretary.*

NORTHERN OHIO.

The Northern Ohio Branch of the American Pharmaceutical Association held its regular meeting November 25, 1924, at the Western Reserve University School of Pharmacy, 2045 Adelbert Road.

A report was heard on the Buffalo meeting from the voting delegate, Edward D. Davy, and from Edward Spease.

The topics for discussion were: (1) The three-year course in Pharmacy; and (2) Abolishment of the Assistant Pharmacist.

The presence of a goodly number of pharmacists at this meeting indicated the great interest which they have in the subjects and all entered into the discussion bringing out their views for the good of pharmacy as it exists and that which we should strive to make it.

EDWARD D. DAVY, *Secretary.*

NORTHWESTERN.

The December meeting of Northwestern Branch of the American Pharmaceutical Association was called to order by Chairman Charles H. Huhn at 2:00 P.M., Friday, December 19, 1924, at the West Hotel, Minneapolis.

In the absence of the Secretary F. A. Upsher Smith, H. C. Kruckeberg was elected Secretary pro tem.

Secretary Smith had before the meeting his letter of resignation. He based his request upon his inability to carry the work of the office on account of being too busy. By vote the resignation was accepted.

Upon motion, F. J. Wulling was unanimously elected to fill out the unexpired term of the secretaryship and he immediately assumed the duties of the office.

By motion it was decided to accept the invitation of the Scientific and Practical Section of the M. S. P. A. to meet jointly with the Section at its next meeting in February.

Upon motion, the Chairman appointed a Nominating Committee to report nominations for the election to take place at the next meeting. The committee appointed consisted of Messrs. Jelinek, Chairman; Kruckeberg and Dargavel.

The newly appointed Nominating Committee then made the following nominations: President, A. J. Kline or H. H. Gregg; Vice-President, Miss Frances Greenwalt or Miss Margaret Keenan; Secretary, Charles V. Netz; Treasurer, Fred Klenert.

The question whether the election was to be by mail ballot having arisen, the Secretary was instructed to proceed according to the rules and By-Laws whatever they may be.

Upon motion, the Chairman appointed Messrs. Jelinek and Dargavel as tellers to function at the coming election.

The business of the meeting having been completed, a symposium followed on the question of the advantage of joint meetings of all Twin City Associations related to Pharmacy, such as the Branch, the Minneapolis Retail Druggists' Association, the St. Paul Retail Druggists' Association, the Alumni Association of the College of Pharmacy of the University of Minnesota and the Minnesota Women Pharmacists' Association. Messrs. Huhn, Kruckeberg, Jelinek, Dargavel, Smetana, Kline, Wulling and Miss Malerich took part in the symposium.

FREDERICK J. WULLING, *Secretary.*

PHILADELPHIA.

The December meeting of the Philadelphia Branch of the American Pharmaceutical Association was held on Tuesday evening, December 9th, at the P. A. R. D. Building, 2017 Spring Garden Street.

The meeting was called to order at eight-thirty o'clock by President Harrisson. Upon motion, the reading of the minutes of the October meeting, which had not been presented at the November session, was dispensed with. However, the Secretary read the minutes of the Mock Trial meeting of November, which had been so ably written up by Ivor Griffith.

As there was no general business to come before the branch, the President then introduced the speaker of the evening, Prof. E. Fullerton Cook, chairman of the U. S. P. X. Revision Committee, who spoke on the U. S. P. X. and the changes it will bring for the next decade.

Chairman Cook first presented a most interesting story of the workings of the revision committee. He complimented highly the members of the committee for the manner in which they coöperated in the work of the various sub-committees. He also spoke particularly of the splendid aid given by those who are not members of the committee, pharmaceutical and chemical houses and experts from all over the country having assisted the committee greatly by the coöperation they have given in supplying experimental data and information from their own files and records.

The Auxiliary workers of the various committees were given a special tribute for their earnest coöperation in all the committee work. The Bureau of Chemistry at Washington has provided help in every branch of work and will prepare and have for distribution to those who care for them, Bio-Assay standards for the new Pharmacopœia, that all manufacturers throughout the country can prepare Biological products on a uniform basis.

The speaker then gave a very interesting

résumé of the additions and added tests and assays for the new Pharmacopœia. Among the articles of particular interest which have been added are the following: Strong and mild Silver Protein, which provide standards for many of the articles of colloidal and protein silver type found on the present market. Arsphenamine and neoarsphenamine.—Barbital and its Sodium Salt, more familiar to us as veronal and veronal sodium.—Barium Sulphate for X-ray work, and containing a note of caution never to abbreviate it because of its being so readily mistaken for the dangerous sulphide of Barium.—Ethyl Aminobenzoate commonly known as Anesthesin or Benzocaine.—Calcium Iodobehenate frequently called Sajodin.—Carbon Tetrachloride, a purified product so valuable for hook worms. Carbromal, familiar as Adalin.—Chloramine T and Dichloramine T, the war antiseptics, and chlorinated paraffin, the solvent for the latter.—Dextrose, suitable for intravenous injections.—Epinephrine and its solution, more familiar as Adrenalin.—Ipomœa and its resin, which replaced Scammony, and the resin of Scammony. Surgical Solution of Chlorinated Soda, another war product known as Dakin's solution—Chaulmoogra Oil and its ethyl ester so valuable in the treatment of leprosy.—Phenobarbital, long familiar as Luminal—Phenolsulphonephthalein or Phenol Red.—Procaine Hydrochloride or Novocaine.—Quinine Ethylcarbonate or Euquinine.—Thyroxin, the active principle of Thyroid. Finally, whisky and brandy, which speak for themselves.

Chairman Cook also roughly reported about one hundred and fifty "deletions" and as it is taken for granted that most of the articles deleted were not of great value it does not seem necessary to repeat them here. It was mentioned, incidentally, that undoubtedly the N. F. V. would take up a great many of the articles not admitted to the U. S. P. X.

A number of changes in titles were also reported; changes, which in many instances will cause a bit of questioning when a pharmacist receives his first prescription under the new titles. For instance, when "Sucrose" means ordinary "Sugar," and "Lactose" is "Sugar of Milk," we'll probably find many uninformed ones sending out to their nearest neighbor for one ounce of "Sucrose." Saccharin is replaced with Gluside, Hexamethylenamine by Methenamine, Tetanus Antitoxin replaces Antitetanic Serum, etc.

Another change, quite worthy of mention, is that of the Ointment of Yellow Oxide of Mercury. This preparation has been changed from the ten per cent. ointment to a one per cent. product to conform with modern usage. An optional assay has also been provided for Cod-Liver Oil, based upon the vitamine A content.

Professor Cook presented many more interesting notes that we are unable to duplicate here and a general discussion followed his presentation.

A resolution was passed by the Branch instructing the Secretary to convey to the Chairman and the members of the U. S. P. X. Revision Committee a message of thanks and appreciation for the great amount of personal time and energy each one is so unselfishly giving in the revision work.

A rising vote of thanks was given to Professor Cook for his most interesting presentation and for the trouble he had gone to in bringing out so much data and material of interest to all those present.

As usual for Branch nights, a dinner was served at the Engineers' Club before the regular meeting of the evening.

ADLEY B. NICHOLS, *Secretary.*

UNIVERSITY OF WASHINGTON.

The regular monthly meeting of the University of Washington Branch of the American Pharmaceutical Association was held Tuesday, December 2, in Bagley Hall. Inspector H. V. Williamson, in charge of the Narcotic Division, presented an interesting, illustrated talk on narcotic traffic. Many devices were displayed that had been used in smuggling, everything from kewpie dolls to Chinese Joss. The display of opium pipes, those made from door knobs, bottles, etc., as well as the more elaborate Chinese pipes, held the interest of the audience. Vest pocket balances, accurate and compact, along with many other articles, added to the display. Mr. Williamson also presented a large number of photographs depicting the facial characteristics of narcotic habitués. A hearty vote of thanks, along with a notice that he would be called on again, was given the speaker. Thirty-five were present.

HARRIET SNIDOW, *Secretary.*

ASSOCIATION BUSINESS

AD INTERIM BUSINESS OF THE COUNCIL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION 1924–1925.

Office of the Secretary, 192 Roseville Ave., Newark, N. J.

LETTER NO. 3.

December 2, 1924.

To the Members of the Council:

20. Publicity for Chairman Ruth's Address: Motion No. 6 (see item 9, Letter No. 2, page 1166) has been carried. This also disposes of motion No. 3 (see item 3, page 1064, Letter No. 1) for which it was a substitute.

21. Certificate for Ebert Prize: Motion No. 7 (see item 10, Letter No. 2, page 1166) has been carried. In this connection Dr. Pittenger writes as follows:

"In voting in the affirmative on Dr. Arny's motion No. 7, it is perhaps best for me to make an honest confession to Dr. Arny, the Council and the Committee on Property and Funds; and that is, at the time I forwarded my suggestion to the Council I was not aware of Dr. Arny's recommendation.

"As you know, I was extremely busy at the Buffalo Convention in view of the fact I was Secretary of the Scientific Section which made it impossible for me to attend all of the sessions of the Association.

"As I had some business to attend to in Toronto during the week of the Convention, the only possible time I had available was on the day of the 1st General Session. I therefore am sorry to state that I did not hear Dr. Arny's excellent address, which I had the pleasure of reading in the September issue of the JOURNAL, since forwarding my letter to the Council.

"I therefore want Dr. Arny and the Committee interested to know that my suggestion was not offered in opposition to Dr. Arny's recommendation.

"I heartily approve of Dr. Arny's suggestion of a gold medal and feel that it would be more desirable than the certificate.

"Since reading Dr. Arny's recommendation I am wondering whether perhaps it would not be possible to do both. I suggest this for the following reasons:

"Dr. Arny's proposition is to give the winner the option of the present cash prize, or the Gold Medal. This would mean that the young student or worker who needed money to carry on his research work, should he choose the money, would have nothing to indicate that he won the Ebert prize.

"Also it would be impossible to present medals to former prize-winners.

"Would it therefore not be possible to adopt both suggestions by presenting the certificate with the medal. The certificate might state, for example, 'The Ebert Prize for the year . . . has been awarded to John Smith, etc.'

"The certificate could then be issued with either the Gold Medal or the check, and as stated in my former communication, I would be glad to have certificates made for all the living Ebert prize-winners.

"This is simply a suggestion to the Committee, and I wish to again assure you that if it is thought desirable to adopt only one of the suggestions I prefer the one recommended by Dr. Arny.

Very truly yours,
PAUL S. PITTENGER."

22. Appropriation for Headquarters Campaign: Motion No. 8 (see item 12, Letter No. 2, page 1166) has been carried.

23. Formation of Executive Committee of the Council: Motion No. 9 (see item 13, Letter No. 2, page 1166) has been carried. Chairman Beal nominated the following five members of the Council to serve on the executive committee in addition to President Holton, Secretary Day, Chairman Beal, Secretary Fischelis and Treasurer Kelly: Messrs. Hilton, LaWall, DuMez, Arny and Whelpley.

(*Motion No. 13.*) *It is moved by Fischelis that the nominations to the Executive Committee be confirmed by the Council.*

24. Meeting of Executive Committee of Council: Chairman Beal suggests Friday and Saturday, February 13 and 14, 1925, for a meeting of the Executive Committee at Washington, D. C.

(*Motion No. 14.*) *It is moved by Fischelis that the Executive Committee of the Council be authorized to hold a meeting at Washington, D. C., February 13 and 14, 1925.*

25. Approval of Councilor's Action at Wash-

ington. Motion No. 10 (see item 14, Letter No. 2, page 1167) has been carried.

26. F. O. Bowman Replaces J. G. Beard on Board of Canvassers: President Holton's appointment of F. O. Bowman in place of J. G. Beard on the Board of Canvassers and the appointment of Dean Howell as Chairman of the Board has been approved.

27. Election of New Members: Motion No. 11 (see item 18, Letter No. 2, page 1168) has been carried and applicants numbered 24 to 59 inclusive are declared elected. Motion No. 12 (see item 19, Letter No. 2, page 1168) has been carried and applicants numbered H-74 to H-158 inclusive are declared elected.

28. Appropriation for Historical Section: The following letter has been received from Clyde L. Eddy, Chairman of the Committee on the History of American Pharmacy of the Historical Section, A. Ph. A.:

> "At the Asheville meeting of the American Pharmaceutical Association, the sum of One Hundred Dollars was appropriated for the use of the Historical Section in preparing a History of American Pharmacy. The work on the history did not progress last year to the point where it was necessary to use any of this appropriation. Now, however, the committee in charge of this work, of which I am chairman, is in need of funds to have copies made of the chapters that have been finished and for other purposes and I request that the sum of One Hundred Dollars be appropiated for the use of this committee.
>
> Sincerely yours,
> CLYDE L. EDDY, *Chairman,*
> Committee on the History of American Pharmacy, Historical Section."

The request was referred to the Finance Committee and has received the approval of this Committee.

(*Motion No. 15.*) *It is moved by LaWall that $100 be appropriated for the use of the Committee on History of American Pharmacy.*

29. Applicants for Life Membership: Under the provision made by the Board of Directors of the A. Ph. A. at a meeting held in Washington, D. C., December 7, 1923, a contributor to the Building Fund who subscribes $1000 or more is entitled to life membership. The following applications are submitted under this provision:

L. M. No. 1. E. R. Seabury, 87 Maiden Lane, New York City. To receive life membership for contribution of Seabury & Johnson.

L. M. No. 2. Albert Bond Lambert, 2101 Locust St., St. Louis, Mo. To receive life membership for contribution of Lambert Pharmacal Company.

L. M. No. 3. Gustavus A. Pfeiffer, 113 West 18th St., New York City. To receive life membership for contribution of Wm. R. Warner & Company, Inc.

L. M. No. 4. Dr. Martin H. Ittner, 105 Hudson St., Jersey City, N. J. To receive life membership for contribution of Colgate & Company.

(*Motion No. 16.*) *Vote on applications for Life Membership in the American Pharmaceutical Association.*

30. Applicants for membership: The following applications accompanied by first year's dues and proper endorsements have been received.

No. 60, Hossein Amin, Chapel Hill, N. C.; No. 61, Chas. W. Bauer, 2454 Harney St., Omaha, Nebr.; No. 62, G. F. Bowman, c/o V. B. Corporation, 916 Forbes St., Pittsburgh, Pa.; No. 63, Carney Washington Bynum, Chapel Hill, N. C.; No. 64, Alexander Clark, 3616 Iron St., Chicago, Ill.; No. 65, W. E. Harper, Smackover, Ark.; No. 66, W. T. Massey, Box 100, Waldo, Ark.; No. 67, Hans Albin Nelson, 506 W. Bell Ave., Peoria, Ill.; No. 68, Walter P. O'Neil, 309 Carr, Chapel Hill, N. C.; No. 69, Sister Mary Berenice Ripperger, St. Mary's Hospital, Clayton and Belleview, St. Louis, Mo.; No. 70, Logan D. Wallace, 1502–77 W. Washington St., Chicago, Ill.; No. 71, Hal Marion Winders, Chapel Hill, N. C.

(*Motion No. 17.*) *Vote on applications for active membership in the American Pharmaceutical Association.*

31. Applicants for membership who have contributed to Building Fund: The following nonmembers of the A. Ph. A. have pledged a total of $25. or more to the building fund and have made a cash payment of $5. or more. They are therefore entitled to membership in the A. Ph. A.

H-169, Edwin C. Barker, 7 East Main, Canisteo, N. Y.; H-160, Edw. Beckenbach, 7319 Lawnview Ave., Cleveland, Ohio; H-161, Ellis P. Carder, 801 Dale Ave. S. E., Roanoke, Va.; H-162, Jacob Fine, 1509 Edgemont Ave., Chicago, Ill.; H-163, Chas. F. Frock, c/o Fayette Drug Co., 21 E. Main St., Uniontown, Pa.; H-164, A. Goldstein, 5071 Broadway, Chicago, Ill.; H-165, Paul C. Gossmann, 665 W. Lincoln Highway, De Kalb, Ill.; H-166, W. H. Itrich, Hebron, N. Dak.; H-167, John

Chas. Lucey, 629 W. Washington St., Martins Ferry, Ohio; H-168, Edw. A. Reel, 125 W. Platt St., Maquoketa, Iowa; H-169, Jessie B. Russell, 876—1st Ave., Salt Lake, Utah; H-170, Frederick S. Selby, 724 Lincolnway, LaPorte, Ind.; H-171, Elliott E. Selzer, Red Bluff, Calif.; H-172, Samuel Shkolnik, 1409 So. Harding Ave., Chicago, Ill.; H-173, James A. Tatem, 535 Park Ave., Norfolk, Va.; H-174, Salvator P. Tomaso, 1246 Sinnott Place, Chicago, Ill.; H-175, Chas. Clifford Ullrich, 9806 Hough Ave., Cleveland, Ohio; H-176, W. H. Upjohn, c/o The Upjohn Co., Kalamazoo, Mich.; H-177, Robert L. Walker, 503 Olney Road, Norfolk, Va.; H-178, William W. White, 109 Maple Ave., Richmond, Va.; H-179, Walter R. Woolley, 39 W. Main St., Freehold, N. J.

(Motion No. 18.) Vote on applications of contributors to building fund, for membership in the American Pharmaceutical Association.

ROBERT P. FISCHELIS,
Secretary of the Council.

INTERNATIONAL PHARMACEUTICAL FEDERATION.

A meeting of the Executive Committee of the above Federation was held in Paris on November 18, Professor L. van Itallie in the chair. Mr. Edmund White (Member of the Council of the Pharmaceutical Society of Great Britain), representative of that Society, attended the meeting.

UNIFICATION OF POTENT DRUGS.

It was reported that on the initiative of the Federation the Belgian Government had invited the British and other Governments to appoint delegates to a conference on the unification of potent drugs to be held in Brussels next year.

THE TRAFFIC IN PROPRIETARIES.

It was reported that a questionnaire had been issued to the twenty pharmaceutical organizations, constituent members of the Federation, in the different European countries, requesting information as to the conditions under which the traffic in proprietary medicines is carried on, and it was suggested to them that the subject should be included in the Agenda for the Brussels Conference in 1925. The meeting discussed the question of the sale and control of proprietary medicines. It was explained that in France and Belgium the sale of proprietary medicines is permitted only in pharmacies, whereas in America and England, except as to the sale by retail of proprietary preparations containing scheduled poisons, there is no restriction as to their retail distribution, further than that vendors of articles subject to the medicine stamp duty must be licensed to sell them. It was agreed that it would be necessary to prepare a draft of a scheme to serve as the basis of an international control by law of the traffic in question, for consideration at the forthcoming Conference. The meeting affirmed as a principle that (1) an official or statutory regulation of the preparation and sale of proprietary medicines is called for in the interests of the public; (2) an international control is desirable, but will be difficult to establish as long as there are such disparities of law and custom between the different countries; (3) it is necessary that there should be disclosure, in some form, of the composition of proprietary medicines in order to suppress quackery and enable a competent authority to discriminate between reputable preparations and worthless or pernicious nostrums; (4) all articles should be classified as proprietary for which it is claimed that they prevent or cure disease or improve health; (5) that all proprietary medicines should be registered in order to veto the sale of such preparations as have no medicinal value; (6) there should be State control of the composition of proprietary medicines, which for that purpose should be submitted to chemical or physiological analysis and tests; (7) all commercial medical products should be subjected to regular control by the state in collaboration with accredited pharmaceutical authorities; (8) the preparation of all proprietary medicines should be restricted exclusively to pharmacists; (9) as any regulation of the price of proprietary medicines is possible only in countries where there is a minimum retail price list, it was decided to appoint a Special Committee to go into the subject and report to the next general meeting of the Federation, and there were elected to serve on this Committee: Sir W. S. Glyn-Jones (England), M. Loisel (France), and M. Daminet (Belgium).

PHARMACEUTICAL EDUCATION.

There was submitted the sketch of a plan of international pharmaceutical education to provide for some approximation as to standards and scope of scientific and technical instruction and examination, but it was agreed that although in some countries the system is similar to that proposed in the provisional plan, in

others it is so different from it that, for the present, little can be done in this direction.

CHEMICAL NOMENCLATURE.

The Committee received the reports from various countries on this subject, and the statement on them by the Bureau, from which it appeared that in respect to botanical names some progress has been made, or promised, to approximate these to the scientific names, but it seemed to be necessary to retain different commercial names which have a firmly established international currency. Continued efforts are being made to devise Latin names in conformity with the canons of chemical nomenclature. It was suggested that the compilers of national Pharmacopœias should insert the international along with the national name of each drug, etc., to which the former is applicable.

THE SUPPLY OF DRUGS AND MEDICINES TO THE PUBLIC IN RURAL AREAS.

It was agreed that in principle there should be a complete separation between the practice of medicine and that of pharmacy, but that in exceptional circumstances the physician might be allowed to dispense and supply medicines. In order to ensure an adequate supply of drugs and medicines to the public in rural parts, or in thinly-populated districts, it was suggested that the Government should subsidize pharmacies which cannot otherwise be made to pay.

THE SALE OF DANGEROUS DRUGS.

As the outcome of the discussion on this subject, the Secretary was instructed to send a letter, of which a copy is subjoined, to the Conference on the Opium Traffic then in session at Geneva:

"Freely recognizing the high principles that constitute the basis of the Conference, and the obligation of pharmacists to coöperate for this purpose, the Executive Committee of the Federation would welcome regulations that would relieve the pharmacist of administrative functions and responsibilities that are most harassing and detrimental to the business interests of the practice of pharmacy, but are quite ineffective in preventing abuse. The Committee submit that the sale of habit-forming drugs should be regulated in precisely the same way as other poisons, with the exception that the dispensing of dangerous drugs should only be allowed in fixed quantities, upon a medical prescription. The sale by wholesale should be permitted only to pharmacists, or to persons specially licensed, and the sale by retail should be restricted exclusively to pharmacists, and by them solely to persons living in their respective neighborhoods. The Committee does not consider it necessary to legislate in addition to the provisions of Articles 14 b. and 14 c. of the Opium Convention. The Committee is of opinion that it will be necessary to compile an international list of proprietary medicines containing dangerous drugs, with a specification of the percentage of such drugs in them. All regulations applicable to the sale of dangerous drugs in pharmacies should be framed in collaboration with accredited pharmaceutical authorities, and all medical prescriptions should be made out in such a manner as to facilitate the identification of their genuineness."

NEXT MEETING OF THE FEDERATION.

It was decided that the next meeting of the International Pharmaceutical Federation should be held in a country not hitherto visited, such as Switzerland.

[We are indebted to Dr. J. J. Hofman, the indefatigable Secretary of the Federation, for a copy of the translation of the above report, which was admirably done by Miss C. Hofer, assistant in the University Pharmaceutical Laboratory, Kloveniersburgwal, Amsterdam.—EDITOR.]

While the JOURNAL A. PH. A. has been accorded the same favor indicated in foregoing paragraph, we have taken the liberty of reprinting the report from *The Pharmaceutical Journal and Pharmacist* of Dec. 20.—EDITOR.

ILLUSTRATED PHARMACEUTICAL CALENDAR.

A German pharmaceutical calendar for 1925, prepared by Apotheker Fritz Ferchl and published by *Süddeutsche Apotheker-Zeitung*, 57 Tübingerstrasse, Stuttgart, is illustrated by reproductions of historical pharmacies, pharmaceutical documents, pots, utensils and portraits of distinguished pharmacists. The illustrations are on the upper portion of the tear-off leaves, the lower part gives the dates and space for memoranda. The views of the historical pharmacies are good and reproductions interesting; among the latter are the chemical signs employed by Scheele, a prescription written by Schiller, etc.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Members of the Council, A. PH. A.: JAMES H. BEAL, *Chairman;* S. L. HILTON, *Vice-Chairman;* ROBERT P. FISCHELIS, *Secretary;* CHARLES H. LAWALL, HENRY M. WHELPLEY, H. V. ARNY, A. G. DUMEZ, CHARLES E. CASPARI, W. L. SCOVILLE. *Ex-Officio:* CHARLES W. HOLTON, President; Vice-Presidents, PAUL S. PITTENGER AND WILLIAM MANSFIELD; WILLIAM B. DAY, Secretary; E. F. KELLY, Treasurer; W. BRUCE PHILIP, Chairman of the House of Delegates; Editors of the JOURNAL and YEAR BOOK: E. G. EBERLE AND A. G. DUMEZ. Committee on Publications: R. P. FISCHELIS, *Chairman;* H. V. ARNY, PAUL S. PITTENGER, E. F. KELLY, WM. B. DAY, A. G. DUMEZ, E. G. EBERLE.

Collaborators: The members of the Council; the Editor of the YEAR BOOK, A. G. DUMEZ; E. FULLERTON COOK, Chairman, U. S. P. Revision Committee; W. L. SCOVILLE, Chairman, N. F. Revision Committee; the Chairmen of the Sections, A. Ph. A.: PAUL S. PITTENGER, WILLIAM MANSFIELD, JOHN C. KRANTZ, JR., R. S. LEHMAN; W. BRUCE PHILIP, Chairman of the House of Delegates, A. Ph. A.; W. H. ZEIGLER, President A. C. P. F.; CHARLES B. JORDAN, Chairman Executive Committee, A. C. P. F.; H. LIONEL MEREDITH, President, N. A. B. P.; HENRY C. CHRISTENSEN, Secretary, N. A. B. P.

THE MUSEUM AND LIBRARY OF THE A. PH. A. HEADQUARTERS BUILDING.

BY FREDERICK B. KILMER.

I am particularly interested in the Museum, which will not simply be a collection of curious specimens of the art, but rather an exposition of what pharmacy has done, and what it can do—an adjunct of living, moving pharmacy; a demonstration of operative, theoretical and practical pharmacy, as well as of educational pharmacy, manufacturing and industrial pharmacy. An exposition to which the world of pharmacy—manufacturer, wholesaler and retailer, can make pilgrimages; a place where pharmacy as it was, as it is, and as it will be, is unrolled before the onlooker.

No branch of the allied arts can make such an unfoldment as can be gathered here, if we have the will to do it.

Co-equal, and coördinated with the Museum, is the Library. The literature of pharmacy is so scattered as to be unavailable. One college may have a little, another more, but nowhere is the literature complete. In the Association's scheme, it can be marshalled and made available to every worker, from the humble apprentice to the captain of industry.

Think for a moment of a place where everything written, printed or known of pharmacy is made available. Under modern systems of indexing, collating and abstracting, such a Library can be made as though placed in the pharmacist's own office. It can be made a place where the student can study; where the research worker can make a search of the world's knowledge of his problem; where the manufacturer can work out a process; where the analyst can have access to the works of the world; where the wholesaler can find the source and a place for the sale of his wares; where the retailer can find a formula for anything from a pill to a soda filler. A place of satisfaction, of pleasure, pride, delight and profit.

The Museum and Library alone will pay in dollars and cents for the efforts put forth to establish the American Pharmaceutical Association Headquarters. It will be a place which all the toilers in pharmacy, the great or small, can and will use.

I have an abounding faith in the value of every proposed activity which the new Headquarters will supply. My faith in the value of the Museum and Library is so great that I am sending a second check to help lay a few more bricks. I expect to get the value back many times over; if I do not get the return some one else will.

PHARMACEUTICAL HISTORY.

John Frederick Lewis has published a history of the Apprentices' Library (Philadelphia), from 1820 to 1920. This is the oldest free circulating library of the United States. Daniel B. Smith, first president of the American Pharmaceutical Association, was one of the founders, and one of the founders of the Philadelphia College of Pharmacy. One of the signers of the constitution of the Apprentices' Library was Elizabeth Marshall, daughter of Charles Marshall, granddaughter of Christopher Marshall, all three of whom were pharma-

cists; Elizabeth Marshall is known as the first woman pharmacist, and she was successful; Christopher Marshall actively supported the cause of the colonists and was known as the "fighting Quaker."

Mark Twain said of "Dr. James's Dictionary of Medicine" (published in 1745) that the "deadly book was still working the cemeteries —down in Virginia," in 1861. Evidently Mark Twain found much of interest in this 3-volume work, for he wrote of it at another time—"if distributed among the Pretender's troops it might have made military operations against them unnecessary."

Tile and Till for November publishes a response to a toast—"The Pharmacist"—given by our fellow member, Dr. John N. Hurty, 35 years ago, at an N. W. D. A. meeting. He closed his remarks with a poem on the life of a pharmacist; the following is a quotation from the toast: "The pyramids have their story of the apothecary, and the balms and spices that for thousands of years have kept sweet and sound the bodies of Egypt's pharaohs tell of his knowledge and skill."

Fifty years ago "Pharmacographia" by Prof. F. A. Flückiger and Daniel Hanbury was first published, and in the same year Peter Squire published the 10th edition of his "Companion to the British Pharmacopœia," wherein the strength of B. P. preparations were compared with U. S. P. VI, and other pharmacopœias.

M. Bouvet proposes to publish a "History of Pharmaceutical Specialties;" the author recently spoke on the introduction of ipecac into France by Adrien Helvetius, the son of the alchemist who was physician to the Prince of Orange (1680).

THE NEW ARGENTINE PHARMACOPŒIA.

The Argentine Pharmacopœia contains many more formulas for compound preparations than the U. S. P., to an extent representative of a book of standards and of formulas. An interesting formula is the following:

Quinton's Plasma.—*Suero Isotonico de Agua Marina.*—Sea water collected at a distance from the coast, and standardized to a content of 8.5 grams of chlorides, calculated as sodium chloride, per 1000 cc. Filtered through a sterile porcelain candle and filled in ampuls. Artificial Isotonic Sea Water Plasma is prepared by sterilizing at 120° the following mixture, which is then filled into ampuls:

Chemically pure sodium chloride	8.5 grams
Sodium sulphate	0.5 gram
Magnesium sulphate	1 gram
Sodium bromide	0.125 gram
Sodium iodide	0.025 gram
Distilled water, to produce	1000 cc.

A number of veterinary preparations are included. A special article is devoted to a general description of the methods to be adopted in the preparation of organotherapeutic products, and monographs on these preparations, of ovaries, suprarenal, testicles and thyroid, are included.

ATTESTING THE VALUE OF INSULIN.

Charles E. Moore, of New York, who has been given a new lease on life through insulin treatment, has with aid of others made it possible for the Broad Street Hospital of New York to give free insulin treatment to needy diabetics.

NEW YORK HEALTH DEPARTMENT DISCONTINUES TREATMENT OF COLDS WITH CHLORINE.

The New York Health Department, after considerable experimentation, has discontinued the use of chlorine gas in the treatment of colds, because results proved to be of little value. This does not mean that the department disapproves of the treatment nor denies the value of it in certain conditions.

LINIMENTUM CALCIS CHLORINATAE FOR THE TREATMENT OF BURNS.

By substituting *Liq. Calcis Chlorinat.*, B. P., for ordinary lime water in making *Liniment. Calcis* a preparation is obtained which is most efficacious for the dressing of burns and scalds; more so than the official liniment. Should the chlorinated lime liniment be considered too strongly chlorinated, it may be prepared by substituting a portion of the chlorinated lime solution with lime water. In India, whence the author writes, this has not been found to be necessary. To be fully efficacious, the liniment should be freshly prepared, at least once a week, and stored in glass-stoppered bottles in the dark.—J. W. Tombs (*B. M. J.*, 1, 711, 1924; through *Pharmaceutical Journal*).

CHEMIST AND DRUGGIST DIARY.

"The Chemist and Druggist Diary" for 1925 has been published. This annual has greatest value for British pharmacists but there is much information sought by pharmacists elsewhere.

Laws and regulations applying to the practice of pharmacy are brought to date in this issue. The *Diary* contains a large number of formulas, poison antidotes, first-aids, etc., also directories and lists of manufacturers, associations, and other useful data. A recent issue of *The Chemist and Druggist* contained a commendatory review of the YEAR BOOK, A. PH. A., Volume 11.

INSPECTOR, ANTINARCOTIC ACT. AGENT, ANTINARCOTIC ACT.

Receipt of applications for positions of inspector and agent, antinarcotic act, will close January 20, 1925. The examinations are to fill vacancies in the Internal Revenue Service of the Treasury Department, at an entrance salary of $2100 a year. Promotion may be made to higher salaries in accordance with civil service rules.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. civil-service examiners at the post office or custom house in any city.

THE SEASON'S GREETINGS.

Seasonal mementoes have reached the Editor and the JOURNAL Office, accompanied by greetings:

Preparations for the Household, of E. R. Squibb and Son.

Loose Leaf Calendar of Fritzsche Brothers, Inc.

Pompeian Pharmaceutical Calendar of Digestive Ferments Co.

Leather-bound pocket memorandum pad of William S. Merrell Company.

Memo-Calendar of Merck & Company.

PERSONAL AND NEWS ITEMS.

An appeal by **Dean Frederick J. Wulling,** to all persons to help save lives was broadcasted during December, published in a number of papers and is to be prepared in booklet form for distribution. The address systematically considers the responsibilities involved when accidents occur, the causes of fatalities, individual and collective duties. All over the country there is an awakening to the responsibilities in accidents which result from carelessness of automobile drivers and pedestrians, and this address is a message prepared in response to a request of the Mayor and Safety Commission of Minneapolis.

Dean Charles H. LaWall was given a number of columns in an educational issue of the *New York American* on "Study of Pharmacy Has Taken Great Strides in Last Century." Publicity will help Pharmacy just as it has been very helpful to Medicine. Good Advertising is making strides—President Coolidge was pleased to welcome the representatives of the advertising activities of this country; the Prince of Wales opened the last convention of the Associated Advertising Clubs of the World. The advertising Pharmacy is receiving because of the A. Ph. A. Headquarters campaign is coming into evidence; those who fail to share are missing an opportunity to help themselves. Professor LaWall's address on "The Romance of Chemistry," was recently featured by the *Philadelphia Public Ledger.*

Professor Poulson the well-known pharmacologist of the University of Christiania, has been presented with 10,000 kroner by the coöperative societies of Norway and Sweden, to enable him to continue his investigations into the elaboration of a vitamin preparation to be incorporated in margarine.

Dr. Hermann Thoms has written a book of more than 300 pages, describing his trip to Japan and points of the journey.

Dr. Lyman Spalding, father of the U. S. Pharmacopœia, should be assigned place in the Hall of Fame. The Pharmacopœia ranks among the works that have contributed most to conservation of health, science and industry; imagine the condition of the sick, of industry and even science without the standard. The names for the Hall of Fame are soon to be chosen and must be in the hands of Dr. Robert Underwood Johnson, of the New York University, N. Y. City, by the 15th of March. Use your efforts promptly and effectively—the argument should be on the basis of service. A sketch of Dr. Lyman Spalding will be found in the August number of the JOUR. A. PH. A., p. 675. The public is invited to submit names; therefore, induce those of your patrons who are informed on the subject to write—good sound argument will be welcome.

The electors include former Ambassadors John W. Davis, David Jayne Hill and Brand Whitlock, and six college Presidents, among them being Dr. James Rowland Angell, of Yale, Dr. Marion LeRoy Burton, of Ann Arbor, and Dr. Charles W. Eliot, President Emeritus of Harvard. Other collegians who have accepted appointments are Professor William Lyon Phelps, of Yale, Dr. K. C. M.

Sills, of Bowdoin, Dr. Henry K. Warren, of Yankton University, Dr. Kendric C. Babcock, President of the University of Illinois; Professor Grant Showerman of the University of Wisconsin; Professor Lewis Perry of Exeter and Professor Frederick Tupper of the University of Vermont.

The feminine group of electors include Alice M. Robertson, of Oklahoma, Miss Ellen Glasgow, of Virginia, and Miss Agnes Repplier, of Philadelphia. Art circles are represented by Royal Cortissoz and Cass Gilbert. Others who have consented to serve are Theodore Marburg, formerly Minister to Belgium; Dr. John C. Merriam of the Carnegie Institute of Washington; United States Senators Reed, Smoot and Oscar W. Underwood, William Allen White of Kansas, Abbot L. Mills of Portland, Ore.; Hamilton Holt of Connecticut, Dr. Talcott Williams, Harrison S. Morris of Philadelphia, Stuart P. Sherman and Bishop John P. Carroll of Montana.

The Evening Bulletin, Philadelphia, of January 7, gave a brief account of the life of the late **Prof. Henry Kraemer.**

Dean C. W. Johnson, of the College of Pharmacy of the University of Washington, **H. E. Holmes** and **Cornelius Osseward** have been appointed a committee to take charge of local contributions for the A. Ph. A. Headquarters fund.

Leonard S. Whitmore, associate professor of pharmacy at the College of Pharmacy, University of California, has been confined to his home for several weeks, because of sickness.

H. W. Rhodehamel spoke on "Insulin" before a large gathering of Science Teachers at the meeting of the Indiana State Teachers' Association in Indianapolis.

Neil E. Gordon, of the University of Maryland, read a paper before the American Association for the Advancement of Science, in Washington, on "The Electronic Conception of Adsorption from Standpoint of Gels."

Prof. Moses Gomberg, head of the Department of Organic Chemistry in the University of Michigan, has been voted the Willard Gibbs Medal for 1925.

Dr. Edward C. Franklin, professor of organic chemistry in Leland Stanford University, will receive the Nichols Medal for 1925.

Frank S. Ward, executive secretary of the Oregon State Board of Pharmacy, who sustained a fractured skull in an automobile accident a month or more ago, has recovered from his injuries and is back at his desk.

Charles C. Neal, has been appointed superintendent of the laboratories of Sharp & Dohme. He graduated from the University of Maryland in 1899, and has been associated with above-named firm since 1901.

S. S. Dworkin, New York, **O. U. Sisson,** Chicago, and **S. L. Hilton,** Washington, D. C., constitute the committee on biologicals of the N. A. R. D.

J. Leon Lascoff has returned to his business, after a brief vacation at Lakewood, N. J.

Francis E. Holliday, who received a well-merited tribute of esteem for his services as general representative at the Atlantic City meeting of the National Wholesale Druggists' Association, leaves on a Mediterranean trip, January 17th. He was given a leave of absence with full pay.

Warren L. Bradt, secretary of the New York State Board of Pharmacy, will leave January 17 on a visit to Europe and hopes to return some time in April.

Martial Casteix, of New Orleans, is now the owner of a chain of five stores in the Crescent City.

John W. Collins, last year's President of Louisiana Pharmaceutical Association, is the owner of one of Monroe's elegant pharmacies.

Charles Ehlers, is chairman of the board of control of Ohio Valley Druggists' Association.

F. R. Peterson, President of N. A. R. D., is becoming quite a traveler—a jump from Ogden to Los Angeles, to San Francisco and Portland is becoming quite the routine, interspersed with banquets and addresses.

Ed. Bradley, Hot Springs, was reëlected President of Arkansas Pharmaceutical Association, and **C. A. Stanfield** is one of his "right hand" supporters.

Garnett M. Eisele, son of an Arkansas veteran, Martin A. Eisele, has opened up a pharmacy in the new Arlington Hotel. The old Arlington was headquarters of the 1908 meeting of the A. Ph. A.

Roy Taylor is the youngest of Hot Springs pharmacy owners.

Frank Schachleiter, of the Arkansas Board of Pharmacy, is largely responsible for the increased A. Ph. A. membership in Arkansas—the result of "keeping-at-it" and enthusiasm for pharmacy.

D. Charles O'Connor, author of "Commercial Pharmacy," was awarded a $100 prize by the N. W. D. A. for his essay on "Essential Value of the Wholesale Druggist to the Retailer."

William Mittelbach, treasurer of Missouri Pharmaceutical Association, recently spent a brief vacation in Texas.

John J. Chwatal, of Chicago, after about a year's absence, has returned from a trip around the world; Mrs. Chwatal accompanied her husband.

James P. Crowley, of Chicago, has been seriously ill for several weeks; reports are favorable for his recovery.

Theophilus Schmid, one of Frater Bodemann's supporters at the C. V. D. A. table, and always, has been elected President of the Roseland National Bank, of Chicago.

Geo. W. Stansfield, veteran Topeka Druggist—Banker—Legislator, has been reëlected to the Kansas House of Representatives by a large majority.

Memphis won out in the selection for N. A. R. D. 1925 meeting, and among the many workers and enthusiasts for securing the convention were **T. D. Turner,** President of Tennessee Pharmaceutical Association; **Ed. V. Sheely,** President of the Memphis Drug Club, and Past President of Tennessee Pharmaceutical Association **W. J. Cox.** Memphis and Tennessee druggists generally are well and favorably known for their hospitality.

Mrs. Pauline Kurz, one of the successful women pharmacists of Detroit, Mich., has been practicing her profession for more than twenty-five years. An interesting fact concerning her present location is that both her store and the apartment in which she lives are housed beneath the roof under which she was born.

OBITUARY.

OSCAR CHARLES DILLY.

Dr. Oscar C. Dilly, 58 years old, dean of the Louisville College of Pharmacy, former superintendent of the City Hospital and a member of the State Board of Health, died January 3, at his home in Louisville, Ky. Dr. Dilly had been ill eight weeks of typhoid fever.

A native of Louisville, Dr. Dilly was the son of the late Ignatius Dilly. He received his education first in the public schools here and in 1885 was graduated from the Louisville College of Pharmacy and in 1900 from the Louisville College of Medicine. In conjunction with his medical practice, Dr. Dilly for a number of years operated a drug store at Twenty-first and Walnut Streets.

In recent years he had devoted his time to work at the College of Pharmacy, having been connected with that institution since 1889. Dr. Dilly was made a professor of materia medica in 1889 and continued in that branch until 1913, when he was appointed a professor of pharmacy. In 1917 he was made dean and at the same time the degree of Master in Pharmacy was conferred upon him. From 1897 until 1907 Dr. Dilly was professor of materia medica at the old Kentucky School of Medicine.

Dr. Dilly had served as President of the Kentucky Pharmaceutical Association and the Louisville Retail Druggists' Association. He became a member of the American Pharmaceutical Association in 1888. He was an honorary member of the Phi Chi, Phi Delta Chi and the Sigma Pi Upsilon Fraternities and was a member of the Falls City Lodge of Masons.

Dr. Dilly is survived by his widow, Mrs. Mary E. Wedekind Dilly, and a sister, Mrs. Doris Englehardt.

Funeral services were held January 5th at the Louisville College of Pharmacy.

While never very active in the Association, he was interested in its progress; it was not until after the passing of Professor Diehl that Dr. Dilly regularly attended the conventions and then his immediate interest was in the sessions of the Conference. He did not come to the Buffalo meeting but was present at Asheville.

WILLIAM OUTIS ALLISON.

William Outis Allison, founder of the *Oil, Paint and Drug Reporter* and its publisher for over fifty-three years, died at his residence in New York City, December 18, of multiple thrombosis, following an attack of pneumonia. He was in his seventy-sixth year, having been born in Bergen County, New Jersey, March 30, 1849.

William O. Allison was the son of William Henry and Catherine (Jordan) Allison. On his father's side he was descended from John Allison, who, in 1644, was one of the founders of the town of Hempstead, Long Island.

When Mr. Allison was eleven years of age he attracted the attention of Mrs. William B. Dana, a wealthy neighbor, who invited him to join her household. This he did, and he re-

mained a member of the Dana family until he was married. Mr. Dana and his brother-in-law, Mr. Floyd, published the *Financial Chronicle* and the *Daily Bulletin*, and when the lad was seventeen he began with them his career as a journalist. So able a market reporter did he become that his information and opinion were sought by prominent men in the trade and by the newspapers. When he was twenty-two years old he decided to capitalize his talent and ability by establishing a weekly market publication of his own, and the *Oil, Paint and Drug Reporter* is the result. In 1874 the publisher of the *Reporter* established *The Painters' Magazine*, and about ten years later bought *The Druggists' Circular*, and successfully continued their publication as long as he lived.

Mr. Allison left three children, Mrs. P. Roderick MacLean, Mrs. Frances C. Allison and John Blauvelt Allison. Five grandchildren also survive. His first wife and the mother of his children was Miss Caroline L. Hovey, Syracuse, N. Y. Mrs. Allison died March 31, 1896. His second wife, who was Mrs. Caroline Comstock, survives.

H. J. Schnell, associated with Mr. Allison for more than thirty years, paid a beautiful tribute to the deceased in the *Reporter* of December 22. Mr. Allison became a member of the American Pharmaceutical Association in 1895.

F. W. Fink, one of the founders of the business that is now Lehn & Fink, Inc., wholesale and manufacturing druggists, New York City and Bloomfield, N. J., died December 31 at Fulda, Germany, where he went recently to join a daughter and other relatives. He was seventy-nine years old.

Mr. Fink was the guest of honor May 3, 1924, at a banquet given by Lehn & Fink, Inc., in honor of the fiftieth anniversary of the founding of the business.

Anthony M. Hance, who retired from the firm of Hance Brothers & White, manufacturing pharmacists, five years ago, died December 23 at his home in Philadelphia. He was 65 years old.

Dr. John Marshall, nationally known toxicologist and for many years professor at the University of Pennsylvania, died January 5, at his home in Philadelphia. He succeeded his father-in-law at the University—Prof. Theodore G. Wormley—whose work along the same lines is well known to pharmacists and chemists.

Richard Warren Proctor, Secretary, member of The Board of Directors, and Director of Publicity of The Wm. S. Merrell Company, died at his home in Cincinnati, December 7. Mr. Proctor was born at Billerica, Massachusetts, fifty-two years ago. He graduated from the Massachusetts Institute of Technology in the class of 1894 with the degree of Bachelor of Science. He entered the employ of The Wm. S. Merrill Company immediately after graduation as a chemist and became successively superintendent of the laboratories, purchasing agent and director of publicity.

SOCIETIES AND COLLEGES.

THE VALUE OF CORRELATING NATIONAL ASSOCIATIONS.

Dean L. E. Sayre, after discussing the formation of various associations of the drug trade, closes his comment by saying that "one of the benefits of long service in pharmaceutical affairs is the acquiring of a perspective, and the ability by thoughtful retrospection to abet constructiveness. Militancy no longer accompanies progressive action. Coöperation is craved. The proud desire for unassisted individual effort and success is gone. The welfare of the whole body, not that of the individual, is the wish. Many of us who were fearful of schisms as being possible wrecking influences, long ago cast such fears aside. There was work—important work to do, which was not covered under the workings of the parent pharmaceutical body. The bifurcating occurrence was exactly this—not a secession but a branching division. All have labored in the vineyard of pharmacy in the cause of usefulness—most frequently in the niche they best fitted. Coöperative service has been rendered without being labeled.

"The 'All-Pharmacy' idea embraces all; invites all. Scientific pharmacy is the true base of pharmacy proper. Without it there would be no commercial pharmacy. Its prestige would be gone. It might number as greatly, there might be more in its business exercise, but in numbers there would not be strength. Let there be an endeavor to get together and keep together in upholding 'All-Pharmacy.' Let us assist in the genesis of a Headquarters' Building."

BUFFALO LOCAL COMMITTEE DONATES SURPLUS TO A. PH. A. HEADQUARTERS.

Local Secretary Dr. Willis G. Gregory was pleased to report a balance after paying all local expenses of the Buffalo A. Ph. A. meeting. The balance of $638.48 was donated to the A. Ph. A. Headquarters' Fund.

SEND IN YOUR PAYMENTS TO THE A. PH. A. HEADQUARTERS.

Business Manager F. C. Bortner of the A. Ph. A. Headquarters' Campaign is endeavoring in every possible way to hold down the campaign expenses. Many subscribers are waiting to receive notice to make their semi-annual payments. It will be readily seen that to send out notices costs time, stationery, stamps, and requires additional clerical service—your prompt remittance will be appreciated; it will help to hold down expenses. Mr. Bortner considered this explanation necessary and, undoubtedly, there will be response to his request—he is serving you. Make your checks payable to Treasurer of the American Pharmaceutical Association, Charles and Chase Streets, Baltimore, Md.

The above refers to unpaid installments of June and of December, 1924—Thank you!

NATIONAL DRUG TRADE CONFERENCE.

The National Drug Trade Conference met in annual session December 3, at Washington Hotel, Washington, D. C.

The attendance was as follows: American Pharmaceutical Association—Prof. James H. Beal, Dr. A. R. L. Dohme, and John C. Wallace; National Wholesale Druggists' Association—C. Mahlon Kline, C. W. Whittlesey, and W. L. Crounse; American Pharmaceutical Manufacturers' Association—Carroll Dunham Smith, and Harry Noonan; The Proprietary Association—Frank A. Blair, Harry B. Thompson, and P. I. Heuisler; National Association Boards of Pharmacy—H. C. Christensen, W. T. Kerfoot, Jr., and H. L. Meredith; American Conference of Pharmaceutical Faculties—Prof. E. F. Kelly, Prof. E. Fullerton Cook, and Prof. W. F. Rudd; American Drug Manufacturers' Association—A. Homer Smith, Horace W. Bigelow, and Carson P. Frailey; National Association of Retail Druggists—Samuel C. Henry, Ambrose Hunsberger, and J. F. Finneran.

Privileges of the floor were extended to those present having interests in common with the N. D. T. C. The Secretary-Treasurer's report was accepted and approved.

RESOLUTIONS ADOPTED: PRICE PROTECTION LEGISLATION.*

"*Whereas*, the experience of the past year has again emphasized the need of legislation to prevent the employment by price cutters of standard identified merchandise of known quality as bait with which to obtain the patronage of the public; and

"*Whereas*, because the manufacturer under the law as now construed by the courts cannot protect his distributors against price-cutting rivals both wholesale and retail trade have become demoralized to an alarming extent; and

"*Whereas*, until about a dozen years ago it was the understanding throughout the business community that manufacturers had the right to agree with their distributors upon the prices at which their products should be sold to the consumer and to-day the United States is the only civilized country in the world in which the right of the producer to contract with his distributors for the maintenance of the resale price of his goods is denied; and

"*Whereas*, there are now pending before the house committee on interstate and foreign commerce four bills designed to legalize the making of contracts between manufacturers and dealers whereby the former may fix the price at which their products shall be sold to the consumer, provided the goods are trade-marked, branded or otherwise identified; therefore, be it

RESOLVED, That the National Drug Trade conference in annual meeting assembled hereby heartily indorses the principle underlying the bills now pending in congress, urges the house committee on interstate and foreign commerce to give them prompt consideration with a view to their passage at the earliest practicable date and emphasizes the importance of early hearings on these bills in order that the business men of the country may have an opportunity to present to both house and senate their views concerning the necessity of this most important legislation; and be it further

RESOLVED, That copies of these resolutions be forwarded to the chairman of the house committee on interstate and foreign commerce and the senate committee on interstate commerce.

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* Offered by the Executive Committee.

SO-CALLED CAUSTIC ACID—POISON LABEL LEGISLATION.

Whereas, numerous bills are being introduced into various legislative bodies for the purpose of amending and extending existing poison laws, and

Whereas, the language employed in many of such bills betrays a lack of practical acquaintance with the subject matter on the part of those responsible for their phraseology, therefore, be it

RESOLVED, That the executive committee of the National Drug Trade Conference tenders to the committees of legislative bodies having such bills under consideration its expert advice and assistance in the correction of faulty or indefinite phraseology contained therein, and also that it furnish said committees with a list of authorities and the names of experts who are capable of properly advising such committees upon the general subject of poisons; that the executive committee acquaint such committees of legislators with the following:

1. That it has been found impossible to provide a definition for poisons that will not either include many substances harmless under ordinary conditions or exclude other substances that are capable of sometimes operating very dangerously;

2. That every substance intended to be covered by an act should be specifically set out by name and title therein instead of attempting to cover them by uncertain and misleading definitions;

3. That the use in legislative enactment of such general descriptive phrases as "all other poisons," "all other substances capable of acting poisonously," or "all other substances of similar or equivalent properties" are highly objectionable both from a scientific and from a practical standpoint;

4. That there is no known substance so innocuous that it may not react dangerously in excessive doses or when improperly administered;

5. That even common table salt is highly poisonous to some of the lower animals; that it has on numerous occasions caused the death of human beings when accidentally taken in excessive doses and has frequently been used as the means of committing suicide;

6. That even the common garden vegetable known as rhubarb when eaten in excess has been known to act as a powerful poison on account of its natural content of oxalic acid or acid oxalates and also that many of the ordinary articles of the kitchen cabinet such as spices, condiments and various flavoring substances which though perfectly harmless, as ordinarily used, are capable of acting as violent poisons in over-doses;

7. That promiscuous placing of a poison label upon all substances capable of acting as poisons in excessive doses, but which are not liable to act as poisons under ordinary conditions, has a tendency to cheapen the poison label in the public mind and thereby lessen its proper warning effect when used upon substances of a really dangerous character.

SO-CALLED MISBRANDING LEGISLATION.*

RESOLVED, That it is the sense of this conference that the congress of the United States be requested to exclude the control of foods and drugs from any general so-called misbranding legislation which may now be pending or may hereafter be introduced in the congress of the United States inasmuch as the control of foods and drugs, insecticides and fungicides is now provided for in the National Pure Food and Drugs act and the Insecticide and Fungicide act.

CRAMTON BILL.

Chairman James H. Beal, of special committee No. 1, to study the proposed amendments to the Cramton bill and to ascertain the attitude of Wayne B. Wheeler relative thereto, reported that the committee composed of the Chairman, Samuel C. Henry, and A. Homer Smith, called upon Wayne B. Wheeler and made known to him the complete text as well as the force and effect of certain amendments proposed to H. R. 6645, otherwise known as the Cramton bill, indicating at the same time that these amendments were the outcome of a previous suggestion offered by Mr. Wheeler to the executive committee of the N. A. R. D.

After considering the amendments carefully, Mr. Wheeler expressed himself as being fully satisfied with their provisions with one exception, namely, that of the appointment of the chief of the alcohol and chemical section. On this provision Mr. Wheeler insisted that the appointment be made by the prohibition commissioner with the approval of the secretary of the treasury in lieu of direct appointment by the secretary of the treasury as provided by the amendment to H. R. 6645 adopted by the house judiciary committee.

As further evidence of Mr. Wheeler's favor-

* Offered by the Executive Committee.

able attitude toward the proposed amendments, Professor Beal presented as a part of his report a letter prepared by Mr. Wheeler subsequent to the interview with him of the special committee.

The report of the committee was accepted by the conference.

APPOINTMENT OF SPECIAL COMMITTEE NO. 2.

Prof. James H. Beal moved that a committee composed of one delegate from each constituent organization be appointed to study the report of Special Committee No. 1 and make a report to the conference with recommendations at the afternoon session. The motion was duly seconded by Ambrose Hunsberger, and carried.

The delegates of each constituent organization met in executive session and selected the following as members of Special Committee No. 2: The Proprietary Association—H. B. Thompson; American Drug Manufacturers' Association—Carson P. Frailey; National Association of Retail Druggists—Samuel C. Henry; American Conference of Pharmaceutical Faculties—E. F. Kelly; American Pharmaceutical Manufacturers' Association—Harry Noonan; National Association Boards of Pharmacy—H. C. Christensen; American Pharmaceutical Association—A. R. L. Dohme; and National Wholesale Druggists' Association—W. L. Crounse.

By unanimous consent Dr. A. R. L. Dohme was selected as chairman of the committee.

NOMINATING COMMITTEE APPOINTED.

President Henry appointed the following nominating committee: Prof. James H. Beal—American Pharmaceutical Association; W. T. Kerfoot, Jr.—National Association Boards of Pharmacy; C. Mahlon Kline—National Wholesale Druggists' Association; Carroll Dunham Smith—American Pharmaceutical Manufacturers' Association; P. I. Heuisler—The Proprietary Association; Prof. E. Fullerton Cook—American Conference of Pharmaceutical Faculties; Ambrose Hunsberger—National Association Retail Druggists; Horace W. Bigelow—American Drug Manufacturers' Association.

AFTERNOON SESSION.

DELEGATION OF POWER TO CONFERENCE, PRESIDENT.

RESOLVED, That the incoming President of the conference be authorized to appoint committees to speak for the conference before the legislative or other departmental bodies or upon other proper occasions in matters of emergency not controversial among constituent members.—Adopted.

INDORSEMENT OF CHANGES IN PROPOSED AMENDMENTS TO CRAMTON BILL AS RECOMMENDED BY SPECIAL COMMITTEE NO. 2, ALSO INDORSEMENT OF REVISED AMENDMENTS.

RECOMMENDATION NO. 1.

After a few minor revisions the changes proposed by Special Committee No. 2, as well as the amendments to which the changes applied, were approved in their entirety.

RECOMMENDATION NO. 2.

It was carried that the President be instructed to appoint a committee of three to confer with Senator Sterling.

RECOMMENDATION NO. 3.

Pending the acceptance of these amendments by the managers of the Cramton bill the constituent members of the conference may continue their efforts to secure recommittal of the bill to the senate judiciary committee.

RECOMMENDATION NO. 4.

Special Committee No. 1, heretofore appointed, was instructed to notify Wayne B. Wheeler of the action of the Conference.

PUBLICITY.

The question of publicity was left to the incoming President and Secretary.

ELECTION OF OFFICERS.

The following officers were elected:

President, Samuel C. Henry; *Vice-President*, H. C. Christensen; *Secretary-Treasurer*, Carson P. Frailey; *Delegate to Chamber of Commerce*, Samuel L. Hilton.

APPOINTMENT TO EXECUTIVE COMMITTEE FOR COMING YEAR.

The delegates from the constituent organizations appointed the following members to serve as members of the executive committee for the coming year:

American Pharmaceutical Association, Dr. A. R. L. Dohme; National Wholesale Druggists' Association, C. Mahlon Kline; National Retail Druggists' Association, Samuel C. Henry; American Pharmaceutical Manufacturers' Association, Harry Noonan; American

Drug Manufacturers' Association, Carson P. Frailey; The Proprietary Association, H. B. Thompson; National Association Boards of Pharmacy, W. T. Kerfoot, Jr.; American Conference of Pharmaceutical Faculties, Prof. E. F. Kelly.

The Committee was empowered to fill vacancies in the Official Board between the date of this conference and the next.

Affiliation with the Chamber of Commerce of the United States of America was continued for the ensuing year.

The report of Samuel L. Hilton, councillor of the conference to the U. S. Chamber of Commerce covering the activities of the chamber during the past year, was accepted and approved.

The President was empowered to enlarge the committee appointed to call upon Senator Sterling.

MEMPHIS, TENN., CHOSEN FOR N. A. R. D. CONVENTION.

The National Association of Retail Druggists will meet in Memphis, Tenn., September 21–25, 1925.

NEW YORK ACADEMY OF PHARMACY RAISES CHARTER MEMBERSHIP LIMIT.

At a recent meeting of the organizers of the New York Academy of Pharmacy thirty-eight registered pharmacists were admitted to membership and the applications of fifteen others were received. The demand for charter membership is such that the limit has been increased from 150 to 300.

The Brownsville Apothecaries' Association, the Bronx County Pharmaceutical Association and the Brooklyn Retail Druggists' Association have become contributing members by donating $300.

STATE PHARMACEUTICAL ASSOCIATION NOTES.

Iowa Association will meet in Des Moines, January 28, an interesting program has been prepared which includes an address by the Governor of Iowa.

Minnesota Association will convene during the week of February 9, in St. Paul. A number of other organizations will meet with the state body. The third annual Great Northwest Drug Show will be formally opened by President Al Falkenhainer of the Northwestern Pharmaceutical Bureau at the St. Paul Municipal Auditorium, February 10.

Maryland Association contemplates the publication of an official organ.

New Jersey Association held a special meeting in Trenton, for the discussion of proposed legislation.

Ohio Association is considering the advisability of dividing the drug trade into three classes.

Tennessee Association has decided to cease "Unit Plan" activities and submit consideration of discontinuance at the annual meeting.

GERMAN APOTHECARIES.

The seventy-third meeting of the New York German Apothecaries' Society was held on December 4th with a large attendance. Officers were elected as follows:

Honorary President, Carl F. Schleussner; President, Fred. Schaefer; First Vice-President, Emil Roller; Second Vice-President, Curt P. Wimmer; Recording Secretary, Otto P. M. Canis; Corresponding Secretary, Alex. Heimburger; Treasurer, Paul Wellenberger; Recorder, George Decker; Librarian, Henry F. Sasse; Trustees, Carl F. Schleussner, Dr. Carl F. Klippert and Robert S. Lehman; Chairman of Entertainment Committee, Martin Uhlig; Chemist, Dr. Friedrich Klein; Attorney, Hieronimus A. Herold; Press Committee, Hugo Kantrowitz.

THE COMMONWEALTH STUDY OF PHARMACEUTICAL EDUCATION.

BULLETIN NO. 3.

This is the third of a series of twelve monthly statements to be issued by the staff conducting this study. These bulletins are issued to acquaint the profession with the progress of the study.

As stated in Bulletin No. 2, a study of Pharmacy from the functional standpoint would divide itself primarily into three major subdivisions, *viz.*, the knowledge, skill and ideals necessary to:

1. Fill prescriptions
2. Answer queries involving pharmaceutical knowledge
3. Conduct the commercial side of the business.

The objectives of the study are then:

A. To provide the raw material for a course in Pharmacy based on the knowledge necessary to fill prescriptions and to answer

queries involving pharmaceutical knowledge.

B. To provide the raw material for a course in Commercial Pharmacy based upon a job analysis of the commercial duties, problems and difficulties of pharmacists.

It was decided early in planning this study to work only toward the first objective. It is obvious that in a study of the information, skill and ideals involved in the filling of prescriptions, it would be essential to have a complete list of the items appearing in prescriptions. Such a list when properly classified would be basic to many branches of the whole study.

In the compilation of this list of items, it was necessary first to collect copies of prescriptions from the prescription books of pharmacists. About twenty thousand copies were collected from centers as follows:

East—Boston, Mass.; New York, N. Y.; Pittsburgh, Pa.; Philadelphia, Pa.; Buffalo, N. Y.

Middle West—Chicago, Ill.; St. Louis, Mo.; Norman, Okla.; Minneapolis, Minn.

West—Lincoln, Neb.; Seattle, Wash.; Salt Lake City, Utah; Los Angeles, Cal.

South—Richmond, Va.; New Orleans, La.

A complete list of the items appearing in prescriptions hereafter, referred to as the "Type of Ingredient List" was drawn from 16,000 prescriptions and included 1827 different items, with a total frequency of 39,880.

A summary of the Type of Ingredient List gives the following information:

1. Frequency of each ingredient in the 16,000 prescriptions studied.
2. Frequency of each group of ingredients such as salts, tinctures, alkaloids, etc.
3. In which group of 500 each ingredient first appeared.
4. Number of ingredients appearing for the first time in each group of 500.
5. Rank of each ingredient as related to the total number of ingredients.

The Type of Ingredient List is also basic to the following studies which will develop the objective of the whole study: Pharmacology, Dosage, Toxicology, Physiology, Botany, Chemistry, Bacteriology, Preservation, Adulteration, and Contamination, Nomenclature, including Latin, Arithmetic, and Physics.

Throughout this study a rather unique scheme called "partitive sampling" is being employed. In the compilation of a list of different ingredients found in prescriptions this method was indispensable. The 16,000 prescriptions were studied in groups of 500 and new ingredients noted as each group was completed. This method of grouping gives rise to the term "partitive sampling." 360 different ingredients appeared in the first group of 500, 220 new ones in the second group, 135 in the third group and so on until the 29th group when only one new ingredient appeared.

When this point was reached, new ingredients then became so rare that the study was stopped at the 32nd group.

A study of the Latin included in these prescriptions was conducted along the same lines. The next bulletin will contain facts developed in the study of Nomenclature.

THE PHARMACIST AND THE LAW.

CRAMTON BILL HEARINGS.

The Senate voted to recommit the Cramton Bill, so-called (H. R. 6645), and the Senate Committee of the Judiciary now has the bill and has held one or two hearings. January 7th has been named as the date when hearings will be resumed before the Senate Committee. Alcohol-using interests have been in frequent conference through representatives, giving consideration to various features of the Bill, with the hope of working out an agreement on such amendments to the existing measure as will amply safeguard legitimate industry in every respect. The very active interest in this measure shown by legitimate industry is responsible for the recommitting of the measure to the Senate Judiciary Committee.

DISCUSSION OF THE CRAMTON BILL.

Secretary Jeannot Hostmann of New Jersey Pharmaceutical Association, in mimeo 2-C, discusses the Cramton Bill as follows:

"The Cramton Bill, H. R. 6645, has been recommitted to the Senate Judiciary Committee. Hearings have been going on since December 17th. At a recent conference between representatives of the Drug Industry and the Anti-Saloon League several amendments, satisfactory to the retail drug trade, were tentatively agreed upon by both parties. These amendments are now the subject of the hearings. Members should not make the mistake and believe that the recommittal of the bill means its defeat. The "dry" forces appear to have enough votes to pass it. The following amend-

ments will probably be discussed at the various hearings:

"1. Provision for a Division of Permits in proposed Prohibition Bureau, to administer Title 2 of the National Prohibition Act, governing all kinds of intoxicating liquor for non-beverage purposes; the chief of such division to be appointed by the Secretary of the Treasury, or the Prohibition Commissioner, subject to the approval of the Secretary, in which event there shall be a Board of Review to consider appeals from decisions of the Prohibition Commissioner, to consist of three members, one appointed by the Secretary of the Treasury, one by the Secretary of Commerce and the third by the Attorney General.

"2. Provision for a Division of Industrial Alcohol and Chemistry to administer Section 13 of Title 3 of the National Prohibition Act, governing industrial alcohol. The chief of this division shall be a graduate chemist to be appointed by the Secretary of the Treasury, or if appointed by the Prohibition commissioner, subject to the approval of the Secretary, there shall be afforded the right of appeal to a Board of Review constituted in the manner described in the foregoing paragraph.

"3. Provision for the two divisions mentioned in the proposed Prohibition Bureau, with jurisdiction as indicated, and with chiefs appointed in the manner stated, together with a Board of Review to consider appeals from the decisions of the National Prohibition Commissioner, to be appointed by the Secretary of the Treasury.

"Amendment No. 1 has the support of drug and pharmaceutical interests. There is now in the Prohibition Unit a Permit Division, enforcing the provisions of Title 2 of the National Prohibition Act, so that this amendment involves no change in existing enforcement. The proposed Permit Division would have jurisdiction over all permitees interested in any kind of liquor for non-beverage purposes, as defined by the National Prohibition Act, including alcohol, rum, brandy, whisky, wine and gin, or, in short, all forms of vinous and spirituous liquor.

"Amendment No. 2 providing for a Division of Industrial Alcohol and Chemistry, for the enforcement of Section 13 of Title 3 of the National Prohibition Act, involves no change in the present law, or its enforcement, because there is to-day such a division in the Prohibition Unit.

"Amendment No. 3 is insisted upon by the managers of the Cramton Bill, including Mr. Wayne B. Wheeler, general counsel for the Anti-Saloon League. Mr. Wheeler objects to the Board of Review being appointed outside of the Treasury Department. He argues that final authority and responsibility for the administration of the National Prohibition Act is lodged in the Secretary of the Treasury, and that for this reason the right of appeal should not lie with Department officials outside of that Department. Those insisting upon a Board of Review consisting of members appointed by the Secretary of Commerce and the Attorney General as well as the Secretary of the Treasury it would in the last analysis amount to nothing more than appeal from the decisions of the National Prohibition Commissioner to the National Prohibition Commissioner. Mr. Wheeler answers that this could be prevented by having the Board of Reviews, appointed by the Secretary of the Treasury, consist of members outside of the proposed Prohibition Bureau."

ONE PINT LIMIT OF ALCOHOL PRESCRIPTIONS UPHELD.

The United States Circuit Court of Appeals, Second Court of New York, has reversed the decision of Judge Knox in the case brought by Dr. Samuel W. Lambert, attacking the constitutionality of that section of the Volstead Act which limits the amount of intoxicating liquor which may be prescribed by a physician in a period of ten days. Judge Knox had held that this section was unconstitutional in that it interfered with the right of a physician to properly prescribe in the course of his lawful practice. A stay was granted on appeal by the United States Government, so that the decision of Judge Knox never became effective, and an appeal was taken to the United States Circuit Court of Appeals. Judge Rogers upheld the constitutionality of the Volstead Act and reversed the ruling of the lower court. Physicians, therefore, in those states where liquor may be dispensed, are not allowed to prescribe more than one pint of spirituous liquors for any one patient in ten days.

COLGATE POLICY UPHELD.

Judge William N. Runyon in the United States District Court at Newark instructed the Federal Jury to bring in a verdict of "not guilty" of the charges brought by the United States Government against Colgate & Co., to the effect that the Colgate price-maintenance

policy, based on the exercise of its right to refuse to sell its goods to anyone who cut the price, involved entering into unlawful agreements and violating the Sherman Act. Prior to giving this instruction to the Jury, Judge Runyon rendered an opinion granting the motion of counsel for Colgate & Co. to instruct the Jury to bring in a verdict of "not guilty."

The foregoing items are reprinted from *N. W. D. A. Bulletin No. 94.*

OPIUM CONFERENCE ADJOURNS.

The International Opium Conference, which has been in session at Geneva, Switzerland, for several weeks, was adjourned last week to January 16, according to a copyrighted cable to the *New York Times.*

European delegates went home to consult their governments. No progress, whatever, could have been made had the delegates remained in session. There are six votes definitely against admission to the agenda of the method for suppression of the traffic in opium proposed by the Americans. Holland, Great Britain, India, France and Portugal have announced they could not take part in the discussion, and without the participation of these countries discussion would be absolutely futile.

The American plan, which was at first termed idealistic, has gained much support since it was introduced. Latin America has formed a solid bloc behind the United States.

Everything, or almost everything, depends on the attitude taken by the British when the conference reconvenes.—*Oil Paint and Drug Reporter.*

BOOK NOTICES AND REVIEWS.

Lang's German-English Medical Dictionary. Edited and revised by Milton K. Meyers, M.D., neurologist to the Northern Liberties Hospital, etc. Third edition, enlarged, 8 vo., 613 pages. Cloth. P. Blakiston's Son & Co., publishers. Price $7.00.

The preface of the third edition of *Lang's German-English Medical Dictionary* states that "since the last edition was published in 1913, the world war actively internationalized medicine so that a wider use of foreign terms resulted. It is probable that the resumption of peace relations with Germany and Austria will result in even greater importation of the literature of German-speaking countries than in the past, in which case a book of this kind will be needed more and more.

"The editor has incorporated herein over 4000 new terms, so that this edition now contains approximately 53,000 definitions. These comprise only words that are spelled differently from the English words that have the same meaning. The counterparts of many of the definitions, especially those of the majority of the eponymic terms herein defined, have not as yet found their way into the purely English medical dictionaries."

The editor acknowledges his indebtedness to Duden's "Orthographisches Wörterbuch" and to Guttmann's "Medicinische Terminologie;" also to the small German Medical Dictionary compiled by Dornblüth.

The foregoing, in a general way, will answer for a review. Aside from medical terms or, perhaps, largely because of them, the value of the dictionary to pharmacists is indicated; many medical terms are also pharmaceutical and have medical application, and these will be found in this Dictionary. In glancing over the pages the more common pharmaceutical terms were noted and also botanical drugs and chemicals and their preparations, many not officially recognized. Botanical and chemical terms and names employed in these and other ancillary sciences are given, but we find that terms used in botany and pharmacognosy are rather limited in number. The Dictionary will be found useful for pharmacists; it reflects credit on the editors and publishers.

"Handbuch der praktischen und wissenschaftlichen Pharmazie." By Prof. Dr. Hermann Thoms, with coöperation of nearly two hundred leading authorities in the subjects relating to pharmacy. Many of the latter names appear in the YEAR BOOK and among them honorary members of the American Pharmaceutical Association. Urban & Schwarzenberg of Berlin, Germany, are the publishers.

A monumental work of this kind—prepared by a leader in pharmacy and with coöperation of leading German pharmacists, which will comprise four thousand or more pages—is deserving of an extended review. The work is to appear in six volumes; parts of two volumes have reached this office. Professor Thoms visited this country about a year ago, on his way to Japan where he had been invited by a number of his former students and other

scientists of Japan to deliver a series of addresses. Reference is here made to the sketch in the July '23 number of the JOURNAL, A. PH. A., p. 569.

It may, perhaps, be said that no textbook on pharmacy has been published which is as comprehensive; most of the well and favorably known textbooks have been designed for students of pharmacy and not, primarily and specifically, as this "Handbook of Practical and Scientific Pharmacy," for the practicing pharmacist. The complexity of pharmacy and its progress considered in connection with the purpose of the work, and the high standing, as authority, of the author and editor, speak for the necessity of the large and carefully selected corps of collaborators. However, the latter may account, in a way, for variations in the number of pages given to subjects, relative to which there is a difference of opinion, not only of individuals, but expressed by the practice of pharmacy in other countries.

The comprehensiveness of the work, its scope and thoroughness in its preparation, can only be commended, and this exceedingly valuable cyclopedia of pharmacy will be a lasting monument to the ability and industry of Professor Thoms. In our opinion the definition of "Handbook" is not sufficiently comprehensive to describe the work; hence the term of the foregoing lines was applied. The progress made in some of the underlying sciences may make revisions of the several monographs necessary at a later day, but this must be expected; most of the treatises will serve several generations of pharmacists. As has been indicated, a review would require more pages than at the disposal of this department, so an outline will have to serve the purpose. The inclusion of some of the subjects may be questioned, but investigation of the pharmacy courses and the papers and discussions before the Sections of the American Pharmaceutical Association and the closely related bodies which meet annually with the former organization, and the several groups more recently organized for specialized work and study, support the judgment of the editor of the "Handbook."

The divisions of Volume I deal with general considerations of the pharmacy and its conduct—arrangement of the pharmacy, regulations; prescription and sale service; history of various phases; patent and household remedies; health insurance; pharmaceutical and chemical laboratories; business conduct; medical practice in its various divisions, as it relates to pharmacy; the wholesale and retail business in general and chapters on utensils and apparatus, preparation and preservation of drugs, chemicals and galenicals and even, as a final consideration in this volume, the telephone service.

Volume II deals with physics and chemistry, and physical, chemical and biological methods of examining drugs and chemicals; separation of alkaloids, glucosides, other principles, essential oils, etc.

Volume III discusses foods, spices, fruits, confections—source, chemistry and manufacture; various technical products—colors, tannins, fibers, fats, oils, soaps, glass, cellulose, inks, pigments, explosives, fire extinguishers, etc.

Volume IV includes discussions on physiology, pathology, hygiene, disinfection; selected methods of investigation and principles of therapy; estimation of blood sugar, urine analysis; chemotherapy, organotherapy; first aid in injuries and poisonings, etc.

Volume V deals with botany and pharmacognosy, drug sources and culture, drug analysis, etc. Volume VI systematically lists chemicals and deals with their composition, preparation, testing and therapeutical uses; in like manner, vegetable drugs will be listed, galenical preparations will be dealt with as the foregoing, also specialties and secret remedies.

A copious index will conclude the work; there are numerous illustrations. The work differs from others relating to pharmacy in that it is a collection of monographs by experts in the respective subjects; these are grouped according to a natural sequence instead of following an alphabetical arrangement. The work will displace the "Realenzklopädie der gesammten Pharmazie," which will not be reissued.

Earlier in this review it was mentioned that the space given to subjects may in every instance not meet the approval of all; there will be differences of opinion, but viewing the book as a whole, it is an outstanding work which should be in the library of every pharmacist, and a College of Pharmacy library is incomplete without it. Having said that, a concluding reference may be made to a subject insufficiently considered, that of percolators, pp. 461–465; the excellent monograph immediately following on filtration apparatus takes up 26 pages; a comprehensive and instructive monograph is that on sterilization. A discussion of these monographs would readily lead the writer to extend the review which must now be concluded.

The Story of Chemistry. By James Maxson Stillman, late Professor Emeritus of Chemistry, Stanford University. With a foreword by Stewart W. Young. New York: D. Appleton & Co. Pp. 556 + xiii.

This excellent volume embodies in permanent form the numerous themes on the History of Chemistry, delivered by the late Prof. Stillman to his classes at Stanford University. The preparation of the voluminous material for publication, in book form, necessitated many and frequent references to original sources, when still extant. The subject is well adapted alike for those whose scientific knowledge may lack profundity, as well as for the professional scientist who might not have the available time nor the opportunity to refer to manuscripts and records that are still preserved.

The text commences with the practical chemical applications of the ancients and continues on throughout the scientific developments and achievements in chronological order, concluding with the subsequent nullification of the Phlogiston Theory at the time of Lavoisier. Fourteen pages are devoted to an exceptionally fine and replete bibliography.

This volume is concise in its presentation of a vast subject and represents a valuable contribution to the technical literature of the year.

SIMON MENDELSOHN.

The Akademische Verlagsgesellschaft M. B. H., Leipzig, publisher of scientific works and well known throughout the universe submits the following two books for review:

Sir Henry Roscoe, Ein Leben der Arbeit. Von Rose Thesing. Mit einer Einführung von Wilhelm Ostwald. Lexicon 362 pp. Cloth. Goldmark 10.

This is volume VII of a series of biographies edited by that genius Wilhelm Ostwald entitled "Grosse Männer" (Great Men). The ones previously published are: Jacobus Henricus van't Hoff Victor Meyer, Ernst Abbe and Emil Rathenau, Grosse Männer, History of Sciences and Scientists during two Centuries.

The volume before us is an autobiography of Sir Henry Roscoe, the eminent British chemist and pupil of that bright light at the University of Heidelberg, Robert Wilhelm Bunsen. Two chapters entitled "Old Heidelberg the Finest" and "Bunseniana and Heidelberg Friends" are devoted to his German university studies and experiences. These are illustrated with pictures of Bunsen, Helmholtz and a group picture of Kirchoff, Bunsen and Roscoe, together with reproductions of 3 autograph letters from Bunsen to Roscoe. These chapters are full of historical facts, the invention of the Bunsen burner, the photometer, the spectrum analysis, his friendship with the celebrated Heidelberg Trio—Bunsen, Helmholtz and Kirchoff, and many anecdotes. Among the 13 other chapters, a total of 15, we want to point out the following: "Owens College," "Work in the University of Manchester," where Roscoe was professor of chemistry, director of the chemical laboratory and then dean, "Political Activity," "London University" and "Family Life."

It might not be so well known that Roscoe was so convinced of the success of German University studies that he transplanted that system in the British colleges. He was such an ardent champion that he transformed the educational colleges into research institutions similar to German practice. It might furthermore be unknown that Roscoe was forever thankful for the studies and inspiration gained at Heidelberg and that, unlike others, continued this friendly feeling all during the world war. After all true science knows no war!

The volume is properly entitled "A Life Full of Work," as Sir Henry E. Roscoe's literary works alone are a testimonial, namely: Lessons in Elementary Chemistry, Bunsen and Roscoe Photochemical Researches and the 9 volume masterwork Roscoe and Schorlemmer's Treatise on Chemistry. Roscoe's achievements were duly celebrated by the Golden Anniversary of his doctorate on April 22, 1904 in Whitworth Hall, University of Manchester.

The book is not only a biography, it is a mine of valuable information to the student of history, of chemistry and of chemical education. Thanks are also due to the progressive publishers for the addition of many excellent illustrations.

Grundzüge der Kolloidlehre. von Prof. Dr. Herbert Freundlich. Octavo, 157 pp. Goldmark 6.

This book, just off the press, is written by a authority with a world-wide reputation being a member of the Kaiser Wilhelm Institute for Physical Chemistry and Electrochemistry in Berlin—Dahlem. It is an abridged test of the author's masterwork "Kapillurchemie," the leading authority in colloidal chemistry.

The book is divided into 2 parts:

I. The Physical-chemical Foundation of Colloid Chemistry, again subdivided into Capillary Chemistry, The Rapidity of a New Phase and the Brownian Movement.

II. The Colloid-dispers Systems, subdivided

into Colloidal Solutions, Sols and Gels and Colloid-dispersoid formations as fog, smoke and foam.

The clearness of the text, the 27 illustrations and a complete author's and subject index, all help to make this book one of the most desirable volumes on this subject.

OTTO RAUBENHEIMER, PH.M.

PUBLICATIONS RECEIVED.

Popular Science Talks, Volume II. Continuation of a series of popular lectures delivered by members of the faculty at the Philadelphia College of Pharmacy and Science. Price $1.00.

The lectures of this volume are entitled: "The Romance of Drugs," by Charles H. LaWall; "The Story of Rubber," by J. William Sturmer; "Invisible Light," by Henry Leffmann; "Idiosyncrasies, or the Study of a Sneeze," by Ivor Griffith; "Social Insects," by Marin S. Dunn; "Household Insect Pests," by Louis Gershenfeld; "Chemistry in and about the Home," by Freeman P. Stroup; "Something about Gases," by Frank X. Moerk. "Sugar," by Horatio C. Wood; "Chocolate," by E. Fullerton Cook; "Drugs of the North American Indian," by Heber W. Youngken, of the Massachusetts College of Pharmacy.

There is much interesting matter in these lectures for the pharmacist; each one of them contains a thought which may be applied to advantage in other communities. These public lectures are giving the public—for they are listened to and "listened in" by an audience composed of the laity—a better and higher appreciation of pharmacy; the estimate which has been limited to a viewpoint of merchandising is different from several years ago.

Proceedings of West Virginia Pharmaceutical Association, 18th annual meeting held at White Sulphur Springs, June 17–19, 1924. The proceedings report the interesting sessions of the Association and quite a number of pages are given to the report of the Asheville A. Ph. A. meeting. Without making comparisons for the purpose of holding one event above another, a paper by Roy Bird Cook on "Pharmacy in West Virginia" offers the suggestion—for Associations that have not done so—to collect data relating to pharmacy in the respective states. As has been pointed out before, and again in the December number of the JOURNAL A. PH. A., pp. 1105 and 1175, the early history of pharmacy in every state differs.

Hygienic Laboratory Bulletin No. 138 reports —I, Studies on the Bio-Assay of Pituitary Extracts: Concerning the use of desiccated infundibular powder as a standard in the physiological evaluation of pituitary extracts, and II, some factors concerned in the deterioration of Pituitary Extracts. Report is made of the work of Maurice I. Smith and Wm. T. McClosky. The method and technic of the Bio-Assay is detailed and a diagram of the perfusion apparatus used in the assay is shown; twenty illustrations show tracings and some of the results are tabulated. From the experiments described the following conclusions are drawn:

1. Infundibular lobes of the pituitary gland from cattle do not show seasonal variations in oxytocic activity.

2. There is no appreciable difference in oxytocic activity of infundibular lobes from steers and from cows.

3. Freezing freshly removed pituitary glands for several hours does not affect their oxytocic activity.

4. The oxytocic activity of properly acidulated extracts is not affected by fractional sterilization in steam at 100° C. Heating in the autoclave at 15 pounds pressure, for even brief periods, causes deterioration in activity.

The conclusions relative to factors concerned in preservation and deterioration of pituitary extracts are, in part, as follows:

1. Infundibular extracts, carefully prepared and sterilized, do not depreciate in activity for at least one year, if kept in the cold room at a temperature of about 0° C.

2. Temperatures up to 37° C., and up to about two months, do not affect the oxytocic or pressor activity of sterilized extracts, etc.

3. Slight deterioration occurs at 45° C., nearly complete destruction of its active principle, after a period of three months' exposure, at 60° C. Deterioration of pressor activity and oxytocic activity run parallel.

4. Frozen fresh infundibular lobes retain their oxytocic activity at a temperature of —10° to —17° C. for at least two months; at a temperature of about 0° C., the activity is not retained longer than about two weeks.

The conclusions in the foregoing are not reported in full.—EDITOR.